FACTSHEET

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Title: Corn Rootworms

Division: Agriculture and Rural

History: Revision of Factsheet "Corn Rootworms", March 1986

Written by: T. R. Hartman

Table of Contents

Introduction

Two species of rootworms damage corn in Ontario. The northern corn rootworm *Diabrotica barberi* (Smith & Lawrence) is present throughout the province; however, lower numbers are found east of Frontenac County. The western corn rootworm *Diabrotica virgifera virgifera* (LeConte), can now be found as far east as Brockville and north to Ottawa; however, the greater numbers are found only as far east as Kingston.

The spread of corn rootworm across the province started in the sixties and increased with increasing use of continuous corn. This cropping practice creates favourable conditions for the rapid reproduction and spread of this insect.

The western species is by far the more aggressive of the two. In areas where both species are present the western corn rootworms tend to be found in higher numbers than the northerns. The population of these insects is not distributed uniformly and can vary within a field, from field to field within a given area, and from one year to the next.

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Biology and Description

Adult rootworms lay tiny, oval, white eggs that are less than 0.1 mm long. The eggs overwinter in the soil and begin to develop in the spring when soil temperatures reach 10 or 11E C. Larvae emerge and begin invading corn roots by mid-June. The young larvae are slender, cylindrical worms with a white body, a brown head, and have six small legs just behind the head.

Figure 1. Full-grown larvae about 1.5 cm long, white body, brown head and tail end. Soft, white pupae.

Corn rootworms go through three larval stages (instars) before they fully mature. When fully grown the worms are about 1.5 cm (1/2 inch) long and the thickness of a pencil lead.

Rootworm larvae migrate through the soil to nearby roots of young corn plants. They feed on the roots of corn for 3 to 4 weeks until they attain their full growth about mid-July. They then move off the roots and make a small earthen cell in the soil where they transform into soft, white pupae. Transformation to the adult takes 1 to 2 days.

Adults emerge from the pupal cases and leave the soil around the beginning of August. The adults are hard shelled beetles about 6 mm (1/4 inch) long. The western corn rootworm is yellow with black stripes down its wings and the northern corn rootworm is light to pale green in colour.

Figure 2. Western adult - yellow with black stripes on its wing covers.

Figure 3. Northern adult - light to pale green.

The adult rootworms feed on corn silks and tassels. The western adults also feed on the leaves of the plants. About 2 weeks after mating, the females begin laying eggs in the soil, usually in cracks close to the base of the corn plants and at depths of up to 20 cm (8 inches).

Soil moisture influences both the number of eggs laid and where the eggs are laid. Corn rootworm beetles will lay more eggs in moist soil than in dry soil. And high soil moisture content may induce the female beetles to lay their eggs near the soil surface. In Ontario, the main egg laying period usually starts in early to mid-August. Some eggs are laid in September, but, egg viability and survival rapidly declines in eggs laid later in the season. Most of the eggs are in a diapause or resting stage when laid and must go through a winter chilling before they begin development in the spring of the following year. There is only one generation of the rootworms per year.

The adults move out of the field as the corn matures. They are attracted to later maturing fields and to lush green plant growth. The adult rootworms are long-lived and many survive until the first heavy frost

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Damage

By far the greatest amount of injury to the corn plant is done by the larvae in underground feeding. Economic injury by the adults above ground is uncommon.

Larval Injury
The larvae are attracted to the corn roots by carbon dioxide given off by the roots. The tiny worms begin f eeding on root hairs and as they grow they tunnel, channel, and gouge the larger roots. With severe infestations, both main and brace roots in the soil may be completely destroyed.

Figure 4. Severely damaged vs. normal root system.

Plants with a reduced root system lack vigour due to interference with the uptake of nutrients and moisture. In addition, weakened plants may lean or lodge, especially during a rain or windstorm. In an attempt to straighten, they bend or elbow upwards, hence the term "goosenecked" plants. When lodging is bad, harvest losses may also contribute to yield reduction.

Figure 5. Goose-necked plants caused by larval feeding on roots.

Adult Injury
Adults of both species feed on corn silks from August to first frost. Field corn can withstand heavy adult populations (10 adults per ear) at pollination without economic loss. In Ontario, most corn has pollinated before peak adult emergence, therefore ear damage is not common. However, if corn is planted late or if a late-silking hybrid is used and a large number of beetles are present, economic damage could occur because of reduced pollination. After pollination is complete, beetle feeding no longer presents a threat to yield.

Figure 6. Barren ears caused by reduced pollination.

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Control Measures

When extensive goose-necking occurs throughout a corn field, one of two measures may be taken the following year.

1. Cultural
(a) Almost all rootworm eggs are laid in corn fields. The larvae that hatch from those eggs can survive only on corn roots, therefore, rotation with another crop for one year will almost eliminate the risk of rootworm damage. The feasibility of rotation should be critically evaluated if rootworms become a problem in a field. **Rotate the corn whenever it is economically sound.**
(b) Deep-rooted hybrids and adequate fertility provide an optimum advantage to the plant. Hybrids with the ability to rapidly regenerate roots also help to minimize losses.

2. Chemical
Where it is impractical or undesirable to practice rotation, one of the soil insecticides listed for use on corn rootworm in OMAFRA Publication 296, *Field Crop Recommendations*, may be used.

Most of the soil insecticides used for corn rootworm control are applied in a band, at least 15 cm wide, over top of the row at planting. It is recommended that band applicators be set in front of the press wheels to help incorporate the insecticide and to help reduce drift. Some products are also registered for use in-furrow and may be applied directly into the seed furrow openers.

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Insecticide Performance

The level of performance of any insecticide can be affected by a number of factors, including: proper calibration, placement, incorporation, planting date, physical and chemical properties of the insecticide, soil factors and the weather. Clearly, the most essential elements are proper calibration and application. **All insecticide applicator units should be calibrated every year** to ensure the proper amount of insecticide is applied.

Placement of the insecticide is also very important primarily because placement and incorporation are closely related. Even in corn no-tilled into heavy surface residue, in-furrow and band applications are equally effective provided, when banding, the bander is placed such that the granules are incorporated by the action of the furrow-closing wheels or presswheels. All registered products are labelled for application as bands. In some cases the presswheel or furrow-closing wheel will adequately mix the insecticide into the soil to bring it in contact with soil moisture for activation, however, spring tines or drag chains will further help incorporate the insecticide.

If in-furrow is the placement of choice producers should be aware that Counter is the only rootworm insecticide recommended for placement in-furrow.

Date of planting can also affect the performance of rootworm insecticides. Naturally, the greater the time between application and egg hatch (i.e., early planting), the greater the opportunity for the concentration of the insecticide to be reduced to an ineffective dosage in the soil.

Soil moisture is probably the key nonbiological factor affecting the ultimate level of control with a soil insecticide. Too much or too little soil moisture can adversely affect any insecticide. Under dry soil conditions, the insecticide is not distributed adequately in the soil solution and profile. On the other hand, extremely wet conditions may leach the insecticide out of the soil profile or carry it away with surface run-off.

There appears to be greater variability in controlling corn rootworms with soil insecticides than ever before. Producers should be aware of the relative risk associated with their strategy for managing corn rootworms. Crop rotation is still~the best method of controlling corn rootworms, provided volunteer corn was not a problem in the crop preceding corn.

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This Factsheet was authored by: T.R. Hartman, formerly Crop Technology

For more information contact Tracey Baute, Field Crop Entomologist, OMAFRA, Ridgetown.

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Long lasting low rate insecticide makes its debut

Arable Farming; Ipswich; Dec 12, 1998;

Start Page: 12
ISSN: 02696797

Abstract:
Brighton Goers saw the introduction of a novel broad-spectrum low use-rate insecticide, from Novartis.

Based on thiamethoxam, it is to be introduced under the brand Actara for foliar and soil application and Cruiser for seed treatment.

In its Cruiser seed treatment form it protects the seed and young seedling right from the start. Due to its rapid uptake by the roots and fast transport into the young stems and leaves it is additionally claimed to provide control of foliar insect pests up to 90 days after seedling emergence.

Full Text:

Brighton Goers saw the introduction of a novel broad-spectrum low use-rate insecticide, from Novartis.

Based on thiamethoxam, it is to be introduced under the brand Actara for foliar and soil application and Cruiser for seed treatment.

The new material belongs to the chemical subclass of thianicotinyl compounds and is the first example of a second generation neonicotinoid.

It can be used on most crops and is said to be highly active against a broad-spectrum of soil-dwelling insects and to offer effective control of a wide range of early-season leaf-feeding and sucking insects.

A fast-acting material, its speed of activity on sucking insects is said to limit the transmission of plant viruses in crops such as cereals and sugar beet for example.

In its Cruiser seed treatment form it protects the seed and young seedling right from the start. Due to its rapid uptake by the roots and fast transport into the young stems and leaves it is additionally claimed to provide control of foliar insect pests up to 90 days after seedling emergence.

Its different mode of action to that of the established organophosphates, carbamates and pyretheroids classes of insecticides, is said to permit effective control of insect strains which have developed resistance to those insecticides.

Has low rate use

Using low-rate technology, it is claimed to provide equal, or even superior activity, at low rate than currently available compounds. On sugar beet, for example, it is said to provide control at half the dose rate of Gaucho.

As Cruiser, it can be a applied to cereals as a seed dressing, or a seed coating, while sugar beet seed can be pelleted, for example.

Other features include effective activity in wet or dry soils, highly systemic activity making it suitable for application as a foliar spray, drench, or in drip irrigation, a favourable safety profile and rapid degradation under field conditions.

Already widely marketed in the Southern Hemisphere as Actara foliar spray, registration in Europe is expected in the year 2000. In northern Europe Novartis see it making its debut first as a seed treatment for sugar beet, cereals and oilseed rape.

Credit: Actara insecticide

BusinessWeek

To Beat a Parasite, Confuse It

Business Week; New York; September 1, 1997; Neil Gross;Elizabeth Veomett;

Edition: Industrial/technology edition
Issue: 3542
Start Page: 72
ISSN: 07398395
Subject Terms: Pesticides
Innovations
R&D
Corn
Classification Codes: **9000**: *Short article*
9190: *US*
8400: *Agriculture industry*
5400: *Research & development*
Geographic Names: US

Abstract:
Researchers at Colorado State University have devised an environmentally friendly way to deal with the rootworms that plague cornfields. Rootworm larvae navigate to food sources by detecting carbon dioxide. By strategically adding carbon dioxide to the soil, the worms can be steered away from the plant roots.

Full Text:

[Photograph]
Photograph: CORNY: Rootworms love CO2
BOB KALMBACH, UNIVERSITY OF MICHIGAN

CORNFIELDS ACROSS THE country are showing off their green and golden splendor. Hidden underground, however, are the ravages of a billion-dollar blight called rootworm. Pesticides are the standard solution. But researchers at Colorado State University think there is a better, more environmentally friendly way to deal with the parasites: Befuddle them.

The scientists' idea hinges on the recent discovery that rootworm larvae navigate to food sources by detecting the carbon dioxide that corn roots emit. If the larvae don't make it to the roots within 24 hours of hatching, they die. So entomology professor Louis B. Bjostad and his colleagues turned to two ingredients familiar to bakers everywhere: yeast and sodium bicarbonate. The researchers concocted separate recipes of baking soda and yeast, chemically primed to release CO2. Then they tested each one on separate small plots of land. Both recipes produced enough CO2 to steer the larvae away from the roots, causing them to starve. The scientists are planning more extensive trials on larger tracts of land.

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File 344:CHINESE PATENTS ABS APR 1985-2002/APR
         (c) 2002 EUROPEAN PATENT OFFICE
File 347:JAPIO Oct 1976-2002/Feb(Updated 020604)
         (c) 2002 JPO & JAPIO
File 350:Derwent WPIX 1963-2001/UD,UM &UP=200235
         (c) 2002  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.

Set     Items   Description
S1      27930   INSECTS OR TERMITE? OR PESTS OR BUGS OR PARASITE?
S2      77002   CARBON()DIOXIDE OR CO2
S3        332   CORNROOT? OR CORN()ROOT? OR ROOTWORM? OR ROOT()WORM?
S4         41   THIAMETHOXAM OR THIANICOTINYL? OR NEONICOTIN?
S5        250   CORN()COB()GRITS OR (SPENT OR DISTILLER?)(2N)GRAIN OR CRAC-
            KED()CORN? ? OR MALTED()(BARLEY OR GRAIN)
S6      42752   PESTICIDE? OR INSECTICIDE?
S7      84108   ATTRACT? OR LURE OR LURES OR LURING OR SNARE OR SNARES OR -
           SNARING OR BAIT OR ENTICE?
S8      68338   SOWING OR PLANTING OR CULTIVAT?
S9          8   INTEGRATED()PEST()MANAGEMENT
S10     27030   ENVIRONMENT?(5N)FRIEND? OR NON()TOXIC?
S11       302   S1 AND S2
S12         4   S11 AND S3
S13        37   S11 AND S7
S14         2   S13 AND S8
S15         0   S14 NOT S12
S16        10   S13 AND (S3 OR S4 OR S5 OR S6)
S17         8   S16 NOT S12
S18        23   S1 AND S4
S19         6   S18 AND (S7 OR S8 OR S9 OR S10)
S20         6   S19 NOT (S12 OR S16)
S21         2   S1 AND S2 AND S5
S22         0   S21 NOT (S12 OR S16 OR S19)
S23         0   S2 AND S4
S24         2   AU='BERNKLAU E J'
S25         3   AU='FROMM E' OR AU='FROMM E A'
S26         4   AU='BJOSTAD L B'
S27         4   (S24 OR S25 OR S26) AND (S1 OR S3 OR S5 OR S6 OR S8 OR S9)
S28         2   S27 NOT (S12 OR S16 OR S19)
S29         5   S2 AND S3
S30         1   S29 NOT (S12 OR S16 OR S19 OR S27)
S31         7   S2 AND S5
S32         5   S31 NOT (S12 OR S16 OR S19 OR S27 OR S29)
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12/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014374605
WPI Acc No: 2002-195308/200225
Related WPI Acc No: 2000-376204
XRAM Acc No: C02-060287
XRPX Acc No: N02-148388

Attracting termites **to protect structures, comprises providing insecticide and** carbon dioxide **emitting source in enclosure having holes, and positioning the enclosure to attract** termites

Patent Assignee: UNIV COLORADO STATE RES FOUND (COLS)
Inventor: BERNKLAU E J; BJOSTAD L B; FROMM E A; MORTON H V

Number of Countries: 090 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200132013	A1	20010510	WO 2000US13477	A	20000517	200225	B
AU 200052719	A	20010514	AU 200052719	A	20000517	200225	

Priority Applications (No Type Date): WO 99US26074 A 19991104
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200132013	A1	E	134	A01M-001/02	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200052719 A A01M-001/02 Based on patent WO 200132013

Abstract (Basic): WO 200132013 A1

NOVELTY - Attracting **termites** (M1) comprises:

(a) providing a **carbon dioxide** emitting source in an enclosure having openings sufficient to allow **termites** to pass through them;

(b) providing an insecticide that does not repel a **corn root worm** larvae; and

(c) positioning the enclosure with the **carbon dioxide** source at locations so the **termites** are attracted to the source, rather than to structures sought to be protected.

DETAILED DESCRIPTION - Attracting **termites** (M1) comprises:

(a) providing a **carbon dioxide** emitting source in an enclosure having openings sufficient to allow **termites** to pass through them;

(b) providing an insecticide that does not repel a **corn root worm** larvae; and

(c) positioning the enclosure with the **carbon dioxide** source at locations so the **termites** are attracted to the source, rather than to structures sought to be protected.

The **carbon dioxide** emitting source is a biological, chemical or mechanical component. The source releases concentrations of **carbon dioxide** above that found in ambient soil.

INDEPENDENT CLAIMS are also included for:

(1) controlling **root worm** infestation (M2) comprising applying an organic component selected from spent grain, distiller's grain, corn cob grits and microorganisms capable of producing effective amounts of **carbon dioxide** at the time of planting and/or cultivation of a crop; applying an insecticide in conjunction with the organic component, the component is applied by a method of plowing the compound into a field onto which a crop is to be grown or by application of the compound between the rows of crop plants (where the compound emits effective levels of **carbon dioxide** to attract **corn root** larvae);

(2) attracting boring **insects** (M3) comprising placing a source of

carbon dioxide emitting agent in combination with an insecticide that does not repel **corn root worm** larvae, a distance from the root of plants, such that larvae/ **insects** are attracted to the agent without causing damage to the plant roots;

(3) a formulation for attracting **corn root worms** comprising an insecticide that does not repel **corn root worms** and a component selected from spent grain, distiller's grain, corn cob grits, germinated corn, clean cracked corn, malted barley, malted grain, corn gluten feed, fungal organisms, bacteria, algae, microorganisms, inorganic carbonates, calcium carbonate, bicarbonate, alkyl carbonate and/or urea-based components; and

(4) a **termite** trap device comprising a jar having a cover operatively associated with it; the cover having apertures in it such that the total area of the apertures with respect to the jar's surface comprises no more than about 10% of the surface area of the cover; the jar contains an attractant material comprising a **carbon dioxide** emitting source.

ACTIVITY - Insect Attractant; Insecticide.

In a test to show attractant activity, spent brewers grain (as **carbon dioxide** source) was spread out on trays and allowed to air dry overnight. The dried spent brewers grain was then added to soil that contained 20% moisture (12 g dried spent brewers grain per 100 g moist soil). Jar traps were constructed from polyethylene jars with plastic screw caps, each drilled with 36 evenly spaced 3 mm diameter holes. The brewers grain was placed in the jar. Unbaited traps were filled with soil (as control). Fence posts infested with **termites** were used for trapping experiments at 3 different ranches in Colorado. 12 traps were placed 1 meter from the posts in the ground at a depth of 20-25 cm covered completely in soil. Traps were checked weekly for the presence of **termites** . After 1 week, 10 baited traps were found with **termites** present or feeding damage, compared to only 2 traps with the control. After 2 weeks, 4 baited traps were found with **termites** present or feeding damage compared to only 1 trap for the control.

MECHANISM OF ACTION - None given in the source material.

USE - **Carbon dioxide** is used in the methods for attracting boring **insects** such as **termites** and **corn root worm** , to ultimately trap or otherwise destroy the **insects** , to protect structures from infestation by the **insects** .

pp; 134 DwgNo 0/3

Title Terms: ATTRACT; **TERMITE** ; PROTECT; STRUCTURE; COMPRISE; INSECT; CARBON; EMIT; SOURCE; ENCLOSE; HOLE; POSITION; ENCLOSE; ATTRACT; **TERMITE**

Derwent Class: C03; P11; P13; P14
International Patent Class (Main): A01M-001/02
International Patent Class (Additional): A01C-023/02; A01G-029/00; A01M-001/10; A01M-001/20; A01N-025/00
File Segment: CPI; EngPI

12/5/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013204331
WPI Acc No: 2000-376204/200032
Related WPI Acc No: 2002-195308
XRAM Acc No: C00-113658
XRPX Acc No: N00-282572
Attracting termites **comprises placing** carbon dioxide **-emitting source, in enclosure with openings to allow** termites **through**
Patent Assignee: UNIV COLORADO STATE RES FOUND (COLS)
Inventor: BENKLAU E J; BJOSTAD L B; FROMM E A; BERNKLAU E J
Number of Countries: 088 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200027187	A2	20000518	WO 99US26074	A	19991104	200032	B
AU 200018134	A	20000529	AU 200018134	A	19991104	200041	
BR 9915306	A	20010911	BR 9915306	A	19991104	200162	
			WO 99US26074	A	19991104		
EP 1146786	A2	20011024	EP 99961587	A	19991104	200171	
			WO 99US26074	A	19991104		

Priority Applications (No Type Date): US 98107285 P 19981106

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200027187	A2	E	5	A01M-000/00	
AU 200018134	A			A01M-000/00	Based on patent WO 200027187
BR 9915306	A			A01M-001/02	Based on patent WO 200027187
EP 1146786	A2	E		A01M-001/00	Based on patent WO 200027187

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): WO 200027187 A2

NOVELTY - Attracting **termites** comprises providing a **carbon dioxide** (**CO2**)-emitting source, such as biological, chemical or mechanical components, in an enclosure with openings to allow **termites** through, where concentrations of **CO2** released is above that found in ambient soil and placing the enclosure at locations such that the **termites** are attracted to the source rather than to structures to be protected.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a method of controlling **root worm** infestation comprising application of spent grain, distiller's grain, corn cob grits and microorganisms capable of producing **CO2** at planting and/or cultivation of crop between plant rows or plowing into field, where **CO2** emitted attract **corn root** larvae;

(b) a method of attracting boring **insects** by placing a source of **CO2** emitting agent at a distance from the roots of plants such that larvae/ **insects** are attracted to the agent without causing damage to the plant roots;

(c) a composition for attracting **corn root worms** comprising spent grain, distiller's grain, corn cob grits, germinated corn, clean cracked corn, malted barley, corn gluten feed, fungal organisms, bacteria, algae, microorganisms, inorganic carbonates, bicarbonate, alkyl carbonate and/or urea-based components;

(d) a **termite** trap device comprising a jar containing **CO2** emitting source with a cover having apertures such that the total area of apertures with respect to the jar's surface comprises no more than 10% of the cover;

(e) a building material resistant to **termite** damage comprising foam panels manufactured using non- **CO2** containing gases; and

(f) a method of reducing **termite** damage susceptibility of building materials, comprising coding **CO2** foam products used as building materials with a sealing compound to preclude emission of **CO2** form the materials.

USE - The methods are used to attract **termites** , control **root worm** infestations, attract boring **insects** , attract **corn root worms** and reduce **termite** damage susceptibility of building materials (claimed).

ADVANTAGE - The methods use **CO2** , which is inexpensive, environmentally friendly, readily available and generated in a number of ways.

pp; 5 DwgNo 0/6

Title Terms: ATTRACT; **TERMITE** ; COMPRISE; PLACE; CARBON; EMIT; SOURCE; ENCLOSE; OPEN; ALLOW; **TERMITE** ; THROUGH

Derwent Class: C03; C07; P11; P13; P14; P42; P63; P73; Q44

International Patent Class (Main): A01M-000/00; A01M-001/00; A01M-001/02

International Patent Class (Additional): A01C-023/02; A01G-029/00; A01M-001/10; A01M-001/20; A01N-025/00; B05D-003/00; B27K-005/00; B32B-003/26; E04C-001/00

File Segment: CPI; EngPI

12/5/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

012702309 **Image available**

WPI Acc No: 1999-508420/199942

XRAM Acc No: C99-148448

New pesticidal 8-azabicyclo(3.2.1)oct-2-ene derivatives

Patent Assignee: ZENECA LTD (ZENE)

Inventor: BRIGHTWELL C I; SALMON R; SMITH S C

Number of Countries: 084 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9938865	A1	19990805	WO 99GB225	A	19990122	199942	B
AU 9921782	A	19990816	AU 9921782	A	19990122	200002	

Priority Applications (No Type Date): GB 981963 A 19980129

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9938865	A1	E	62	C07D-451/02	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

AU 9921782	A		C07D-451/02	Based on patent WO 9938865

Abstract (Basic): WO 9938865 A1

NOVELTY - 8-azabicyclo(3.2.1)oct-2-ene derivatives (I) are new.

DETAILED DESCRIPTION - 8-Azabicyclo(3.2.1)oct-2-ene derivatives of formula (I) and their acid addition salts and N-oxides are new.

One of R1 and R2=H and the other is phenyl, pyridyl, pyrimidinyl, pyrazinyl, thienyl, thiazolyl, benzoxazol-2-one or benzimidazolin-2-one (optionally ring substituted by halo, -6C alkyl, 1-6C haloalkyl, 1-6C alkoxy, 1-6C haloalkoxy, 2-6C alkenyl, 2-6C alkynyl, OH, NO2, CN or methylenedioxy);

R=H, CHO, 1-6C alkyl (optionally substituted by CN, **CO2** (1-6C alkyl) or Ph (optionally substituted by halo, 1-6C alkyl, 1-6C alkoxy, 1-6C haloalkyl or 1-6C haloalkoxy)), CH2(1-6C haloalkyl), **CO2** (1-6C alkyl), **CO2** (2-6C alkenyl), CH2(2-6C alkenyl), CH2(2-6C alkynyl), benzyl (optionally ring substituted by halo or 1-4C alkyl) or XR3;

X=O or NR4 and

R3, R4=H, CN, 1-6C alkyl (optionally substituted by halo, CN, **CO2** (1-6C alkyl) or phenyl (optionally substituted by halo, 1-6C alkyl, 1-6C alkoxy, 1-6C haloalkyl or 1-6C haloalkoxy)), phenyl (optionally substituted by halo, 1-6C alkyl, 1-6C alkoxy, 1-6C haloalkyl or 1-6C haloalkoxy), 2-6C alkenyl or 2-6C alkynyl,

provided that:

(1) when R is Me, COOMe or COOEt, then R2 is not 6-substituted pyrid-3-yl;

(2) when R is not H or CH2(1-6C haloalkyl) then R2 is not phenyl substituted by OH or alkoxy and

(3) when R1 is H and R is H, 1-6C alkyl, CH2(2-6C alkenyl) or CH2(2-6C alkynyl), then R2 is not pyridyl, pyrimidinyl, pyrazinyl, thienyl or thiazolyl (optionally substituted by alkyl).

An INDEPENDENT CLAIM is included for the preparation of (I).

ACTIVITY - Pesticide; Acaricide; Nematicide; Molluscicide.

Chinese cabbage leaves were infested with peach aphid (Myzus persicae) and the infested leaves were sprayed with 4-(5-bromopyrid-3-yl)-8-methyl-8-azabicyclo(3.2.1)-oct-2-ene (Ia) and the mortality assessed after 3 days.

Results showed that (Ia) produced 80-100% mortality.

MECHANISM OF ACTION - None given.

USE - Used to control and combat infestations of insect **pests** such as Lepidoptera, Diptera, Homoptera, Coleoptera and other invertebrate **pests** e.g. acarine, nematode and mollusc **pests** , including **pests** associated with agriculture, horticulture and animal husbandry, companion animals, forestry and the storage of products of vegetable origin and **pests** associated with the transmission of diseases.

(I) are active against e.g. aphids, capsids, planthoppers, leafhoppers, stink **bugs** , thrips, Colorado potato beetle, boll weevil, scale **insects** , white flies, cotton leaf worm, tobacco budworm, cotton bollworm, white butterfly, diamond back moth, cutworms, rice stem borer, locust, **rootworms** , European red mites, broad mites, citrus rust mites, flat mites, spider mites, leafminers, houseflies, mosquitoes, cockroaches, European corn borer, root knot nematodes, cyst nematodes, lesion nematodes and slugs and **insects** which adversely affect the health of the public or animals.

pp; 62 DwgNo 0/0

Title Terms: NEW; PEST; OCTA; ENE; DERIVATIVE
Derwent Class: C02
International Patent Class (Main): C07D-451/02
International Patent Class (Additional): A01N-043/38
File Segment: CPI

12/5/4 (Item 4 from file: 350)

011905464 **Image available**
WPI Acc No: 1998-322374/199828
XRAM Acc No: C98-099143

Insecticidal composition active against e.g. Homoptera - comprises first resistant insecticide and cyano aza bi-cyclo octane derivative

Patent Assignee: ZENECA LTD (ZENE)
Inventor: CLOUGH M S; DUNBAR S J; EARLEY F G P
Number of Countries: 080 Number of Patents: 012
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9823158	A1	19980604	WO 97GB3056	A	19971106	199828	B
AU 9748763	A	19980622	AU 9748763	A	19971106	199844	
CZ 9901842	A3	19990811	WO 97GB3056	A	19971106	199937	
			CZ 991842	A	19971106		
EP 944319	A1	19990929	EP 97911351	A	19971106	199945	
			WO 97GB3056	A	19971106		
SK 9900693	A3	19991108	WO 97GB3056	A	19971106	200003	
			SK 99693	A	19971106		
BR 9713146	A	20000208	BR 9713146	A	19971106	200023	
			WO 97GB3056	A	19971106		

CN 1245397	A	20000223	CN 97181510	A	19971106	200028
HU 200001101	A2	20000828	WO 97GB3056	A	19971106	200055
			HU 20001101	A	19971106	
NZ 335421	A	20001124	NZ 335421	A	19971106	200065
MX 9904835	A1	19991001	MX 994835	A	19990525	200103
JP 2001504511	W	20010403	WO 97GB3056	A	19971106	200126
			JP 98524385	A	19971106	
KR 2000069121	A	20001125	WO 97GB3056	A	19971106	200130
			KR 99704599	A	19990525	

Priority Applications (No Type Date): GB 9624501 A 19961126
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9823158	A1	E	30	A01N-043/90	
Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW					
Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
AU 9748763	A			A01N-043/90	Based on patent WO 9823158
CZ 9901842	A3			A01N-043/90	Based on patent WO 9823158
EP 944319	A1	E		A01N-043/90	Based on patent WO 9823158
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
SK 9900693	A3			A01N-043/90	
BR 9713146	A			A01N-043/90	Based on patent WO 9823158
CN 1245397	A			A01N-043/90	
HU 200001101	A2			A01N-043/90	Based on patent WO 9823158
NZ 335421	A			A01N-043/90	
MX 9904835	A1			A01N-043/90	
JP 2001504511	W		34	A01N-043/38	Based on patent WO 9823158
KR 2000069121	A			A01N-043/90	Based on patent WO 9823158

Abstract (Basic): WO 9823158 A

An insecticidal composition comprises a first insecticide, to which insect **pests** have developed a degree of resistance, an inert carrier or diluent and, optionally, one or more surfactants and further a heterocyclic compound of formula (I) or its acid addition salt, quaternary ammonium salt or N-oxide, to boost the activity of the composition to overcome the resistance of the insect **pests** . A = CH2CH2 or CH=CH; Ar = phenyl, pyridinyl, pyridazinyl, or pyrazinyl (all optionally substituted by halo, 1-4C alkyl, 1-4C alkoxy, 2-4C alkenyl, 2-4C alkynyl or CN); R = H, 1-4C alkyl (optionally substituted by CN, **CO2** (1-4C alkyl) or phenyl (optionally substituted by halo, 1-4C alkyl, 1-4C alkoxy, 1-4C haloalkyl or 1-4C haloalkoxy)), 2-4C haloalkyl (the alpha -carbon being unsubstituted), 3-4C alkenyl or 3-4C alkynyl; provided that when R = alkenyl or alkynyl the group does not have an unsaturated carbon atom bonding directly to the ring nitrogen of (I).

Also claimed is a composition comprising spinosad and (I; A is not CH=CH) or its acid addition salt, quaternary ammonium salt or N-oxide.

The first insecticide is e.g. lambdacyhalothrin, cyhalothrin, fenvalerate, esfenvalerate, cyfluthrin, beta -cyfluthrin, delta -methrin, and etofenprox. (I) is 3-(5-chloropyrid-3-yl)-3-cyano-8-(2,2,2-trifluoroethyl)-8- azabicyclo(3.2.1)octane, 3-(5-chloropyrid-3-yl)-3-cyano- 8-(2,2-difluoroethyl)-8-azabicyclo(3.2.1)octane or 3-(5-chloropyrid-3-yl)-3-cyano-8-azabicyclo(3.2.1)octane.

USE - The insecticidal composition is active against homoptera, whitefly, plant hoppers, heteroptera, lipidoptera, diptera and coleoptera. The composition is active against insect, acarine or nematode **pests** such as aphid, mosquito, capsid, cockroach, cotton leaf worm, **root worms** and mites.

Dwg.0/11
Title Terms: INSECT; COMPOSITION; ACTIVE; HOMOPTERA; COMPRISE; FIRST; RESISTANCE; INSECT; CYANO; AZA; BI; CYCLO; OCTANE; DERIVATIVE
Derwent Class: C02; C03
International Patent Class (Main): A01N-043/38; A01N-043/90
International Patent Class (Additional): A01N-043/40; A01N-043/54; A01N-043/58; A01N-043/60
File Segment: CPI

17/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014254632 **Image available**
WPI Acc No: 2002-075332/200210
XRAM Acc No: C02-022515
XRPX Acc No: N02-055544

Insect control station for both outdoor and indoor applications to control population of insects **e.g. biting arthropods, comprises memory, digital-to-analog converter, speaker and resonator**

Patent Assignee: BUGJAMMER INC (BUGJ-N)
Inventor: ANDREWS W N; CRAWLEY L S; NELSON J R
Number of Countries: 094 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200189295	A2	20011129	WO 2001US16170	A	20010517	200210 B
US 20020011020	A1	20020131	US 2000573382	A	20000519	200210
			US 2001885216	A	20010620	
AU 200161769	A	20011203	AU 200161769	A	20010517	200221

Priority Applications (No Type Date): US 2000573382 A 20000519; US 2001885216 A 20010620
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200189295	A2	E	41	A01M-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM EE ES FI GB GD GE HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

US 20020011020	A1	A01M-001/20	Cont of application US 2000573382
AU 200161769	A	A01M-000/00	Based on patent WO 200189295

Abstract (Basic): WO 200189295 A2

NOVELTY - An insect control station has memory, digital-to-analog converter (DAC), speaker and resonator. The memory stores and delivers digitized audio sample in response to a strobe signal. The DAC has an input connected to the memory and an output that yields analog signals. The speaker receives the analog signals and delivers acoustic energy. The resonator is disposed in path of delivered energy.

USE - The insect control station is useful for both indoor and outdoor applications to control population of **insects** e.g. biting arthropods. It can be used by municipalities to control mosquitoes and biting flies throughout large public areas, or by an individual to control mosquito and biting fly population in a backyard or in the home.

ADVANTAGE - The inventive insect control station is highly cost-effective and environmentally safe for controlling population of **insects** e.g. mosquitoes and biting flies. It can be reliably installed and utilized by inexperienced personnel. It has the ability to **attract** targeted **insects** into the **attractant** zone or to repel the **insects** away from zone.

DESCRIPTION OF DRAWING(S) - The figure is a schematic view of the insect control station.

Eradication device (14)
Speaker (22)
Attractant zone (24)
Resonator (64)
pp; 41 DwgNo 1/7

Title Terms: INSECT; CONTROL; STATION; OUTDOOR; INDOOR; APPLY; CONTROL; POPULATION; INSECT; BITE; ARTHROPOD; COMPRISE; MEMORY; DIGITAL; ANALOGUE;

CONVERTER; SPEAKER; RESONANCE
Derwent Class: G04; P14
International Patent Class (Main): A01M-000/00; A01M-001/20
File Segment: CPI; EngPI

17/5/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013522745
WPI Acc No: 2001-006951/200101
XRAM Acc No: C01-001625

New polypeptide is useful for preventing, reducing and eliminating infestation of area by pests **e.g. flesh flies or mosquito larvae, optionally in combination with e.g. repellent,** attractant **, acaricide, fungicide or herbicide**

Patent Assignee: INSECT BIOTECHNOLOGY INC (INSE-N); UNIV FLORIDA (UYFL)
Inventor: BENNETT J; BOROVSKY D; BRANDT A
Number of Countries: 090 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200062792	A2	20001026	WO 2000US8879	A	20000404	200101	B
AU 200039332	A	20001102	AU 200039332	A	20000404	200107	

Priority Applications (No Type Date): US 99295924 A 19990421
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200062792	A2	E	87	A61K-038/00	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200039332	A		A61K-038/00	Based on patent WO 200062792

Abstract (Basic): WO 200062792 A2

NOVELTY - A pesticidal composition (PC) comprising pesticidal polypeptide (A) comprising an amino acid sequence (I), an active ingredient (B) e.g. antioxidants, antipreservatives, fruits and herbicides and a pesticidally acceptable carrier (C).

DETAILED DESCRIPTION - (PC) comprises:

(i) (A) comprising an amino acid sequence (or its functional equivalents) of formula (I) or a polypeptide (or its functional equivalents) comprising at least one neuropeptide-F (NPF) polypeptide which is ARGPQLRLRF or APSRLRF;

(ii) (B) comprising an active ingredient selected from acaricides, algicides, antioxidants, anti-preservatives, bactericides, biocides, catalysts, chemical reactants, disinfectants, drugs, fermentation agents, fertility inhibitors, fertility promoters, fertilizers, food supplements, foods, fungicides, germicides, growth-regulating agents, herbicides, **insecticides** , microorganism attenuators, nematocides, plant growth inhibitors, plant growth promoters, preservatives, rodenticides, sex sterilants and sterilization agents; and

(iii) (C) a pesticidally acceptable carrier.

A1A2A3A4A5F (I)

A1=Y, A, D, F, G, M, P, S or Y;
A2=A, D, E, F, G, N, P, S or Y;
A3=A, D, F, G, L, P, S or Y;
A4=A, F, G, L or Y;
A5=A, F, L or P;
F=a flanking region which is optionally present and is P, PP, PPP,

PPPP or PPPPP provided that the polypeptide does not consists of YDPAP6, DYPAP6, YDPAP, YDPAP2, YDPAP3, YDPAP4, NPTNLH or DF-OCH3.

ACTIVITY - Pesticidal. A series of peptides tested by feeding to mosquito larvae at concentrations of 0-5.0 mg/ml. Individual, newly hatched Aedes aegypti larvae were maintained in separate microtiter plate wells on a diet of autoclaved yeast. The diet was supplemented with TMOF peptides. An identical number of larvae maintain don yeast served as a control. Larvae fed on different concentrations of TMOF peptides were monitored for eight days for survival and larval growth and development. All control groups survived and larval growth and development was normal. Since larvae swallow only a small portion of the yeast particles adsorbed the peptides, it is assumed that approximately 1-20 ng are taken orally at the high concentrations. The results are displayed as the Lethal Dose at 50% mortality (LD50) of the TMOF peptides.FAP compound expressed as LD50+/-S.E.M. was found to be 3.8+/-0.23.

MECHANISM OF ACTION - Pest digestive enzymes synthesis inhibitor.

USE - PC is useful for preventing, reducing or eliminating infestation of geographical area by an insect population such as flesh flies, fleas, sand flies, house flies and dog flies, comprising applying (A) and (B) to pest inhabited locus of the geographical area such as body of water inhabited by mosquito larvae, or **insects** such as coleopterans, lepidopterans, dipterans or blood-sucking **insects** of order Diptera, suborder Nematocera, family Colicidae or subfamily Culicinae, Corethrinae, Ceratopogonidae and Simuliidae (claimed).

pp; 87 DwgNo 0/3

Title Terms: NEW; POLYPEPTIDE; USEFUL; PREVENT; REDUCE; ELIMINATE; INFESTATION; AREA; PEST; FLESH; FLY; MOSQUITO; LARVA; OPTION; COMBINATION ; REPEL; **ATTRACT** ; ACARID; FUNGICIDE; HERBICIDE

Derwent Class: B05; C03

International Patent Class (Main): A61K-038/00

File Segment: CPI

17/5/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

012711340 **Image available**

WPI Acc No: 1999-517452/199943

Related WPI Acc No: 2002-187236

XRAM Acc No: C99-151067

XRPX Acc No: N99-384720

Method and delivery system for biting insect extermination

Patent Assignee: AIR LIQUIDE CANADA LTEE (CAAL); TMJ ENTERPRISES INC (TMJT-N); UNIV FLORIDA (UYFL)

Inventor: DAY J F; LEE R; PAGANESSI J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5943815	A	19990831	US 97816437	A	19970314	199943	B

Priority Applications (No Type Date): US 97816437 A 19970314

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5943815	A		10	A01M-001/02	

Abstract (Basic): US 5943815 A

NOVELTY - A target (100) for exterminating **insects** has a support structure (102,104,106,108,110) supporting a surrounding flexible fabric cover (120) defining an interior space. A tube (116) extends into said interior to release a gas containing **carbon dioxide** to **attract** said **insects** . The gas is released through small holes (118)

in said tube (116) to prevent insect passage into said tube. The fabric cover is impregnated with a contact **insecticide** and/or coated with a mineral oil to maintain a tacky surface.

DETAILED DESCRIPTION - Preferred Features: The fabric cover (120) is permeable to **carbon dioxide** gas, is shaped as a flexible cylinder and is preferably a dark supple fabric to mimic mammalian movement. The top plate (102) protects the device from rainfall but is spaced apart to allow insect access into said interior. Use of a timer to control gas emissions is also disclosed.

USE - As an area specific method of exterminating biting **insects** .

ADVANTAGE - The **carbon dioxide** gas **attracts** the **insects** for extermination by locally applied **insecticides** .

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic of the system.

Target (100)
Top plate (102)
Support bands (104,106)
Support cylinders (108,110)
Gas delivery pipe (116)
Gas outlet holes (118)
Fabric cover (120)
pp; 10 DwgNo 1/4

Title Terms: METHOD; DELIVER; SYSTEM; BITE; INSECT; EXTERMINATE
Derwent Class: C07; P14; X25
International Patent Class (Main): A01M-001/02
File Segment: CPI; EPI; EngPI

17/5/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

011996767
WPI Acc No: 1998-413677/199835
XRAM Acc No: C98-124777

Protease(s), optionally with other enzymes, in biological pest control - for both invertebrate and microbial pests , **avoid chemical** pesticide **hazards, use in buildings, containers, on skin, and agriculture**

Patent Assignee: TVEDTEN S L (TVED-I)
Inventor: TVEDTEN S L
Number of Countries: 022 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9830236	A1	19980716	WO 98US1137	A	19980108	199835	B
AU 9861333	A	19980803	AU 9861333	A	19980108	199850	
EP 973542	A1	20000126	EP 98905978	A	19980108	200010	
			WO 98US1137	A	19980108		
AU 737578	B	20010823	AU 9861333	A	19980108	200154	

Priority Applications (No Type Date): US 9734740 P 19970109
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9830236	A1	E	27	A61K-038/48	
Designated States (National): AU CA JP US					
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
AU 9861333	A			A61K-038/48	Based on patent WO 9830236
EP 973542	A1	E		A61K-038/48	Based on patent WO 9830236
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
AU 737578	B			A61K-038/48	Previous Publ. patent AU 9861333 Based on patent WO 9830236

Abstract (Basic): WO 9830236 A

Method for exterminating **pests** , by forming a composition containing a protease enzyme, and applying to the pest, is new.

USE - The protease and other enzymes cause internal degradation and dissolve the tissues of the pest, aided by the detergent and other components to increase penetration, or other enhancing effect. The method is applicable both to invertebrate **pests** , as **insects** and arachnids at all stages of development (egg, larva, and adult), and to microbial **pests** , as bacteria, algae, fungi, and viruses. An exhaustive list of the former set is given; examples are ants, **termites** , roaches, lice (including head and body lice, nits, fleas, bedbugs, bees, wasps, dust mites (decreasing allergic reaction to dust), mosquitoes, spiders, flies, moths (including fabric moths), beetles (including carpet beetle), aphids, slugs, pet and cattle **pests** , and soil, lawn, garden, orchard, and forestry **pests** . It is possible to have some specificity; e.g., at certain concentrations, undesirable aphids, leaf miners, and mites are killed, while there is little effect on beneficial ladybird beetles or Aschersonia fungi. On the microbial side, particular use is for elimination of fungal infestations; mildew, mould, blight, rust, and smut, also ringworm, athlete's foot, and jungle rot fungi of mammals, controlling dermatitis symptoms. Of note also is the elimination of algae and organic debris from pond water, by destruction of algal mats. Locations for treatment include buildings, as homes, schools, offices, and manufacturing plants, cargo containers, and various agricultural situations. Treatment can also be on the skin, of ectodermal or intradermal **parasites** on animals, i.e., on fur, hair, down, feathers, or scalp or other human body part. The effect of the composition may be improved by baiting techniques; using sweet, pheromone, or **carbon dioxide** (**CO2**) **attractants** , or lights, or a mixture of them. The lights include candle or other combustion flames, or continuous or blinking white, coloured, or ''black'' (outside the visible spectrum) lights. For use by unskilled personnel, full instructions should be given with the composition packaging.

ADVANTAGE - The method is rapid acting and leaves no toxic residues. It reduces or eliminates the need for highly toxic chemical **pesticides** , which can present hazards to human health, food chains, or cause environmental pollution, leading possibly to a ban on their use. Also resistance to these **pesticides** may develop, necessitating new **pesticide** engineering, more costly than the original, or increasing the amounts, with increased possibility of symptoms. The enzymes can be quite inexpensive, already available commercially as meat tenderisers, digestive aids, bio-detergents, cleaners, or stain removers, etc. The method is also general; supply of ladybirds for aphid infestations, release of sterile males into insect populations, application of juvenile hormones, **attraction** by specific pheromones as **bait** and poisoning, or release of B. thuringiensis, are limited, and do not result in broad spectrum control.

Dwg.0/0

Title Terms: PROTEASE; OPTION; ENZYME; BIOLOGICAL; PEST; CONTROL; INVERTEBRATE; MICROBE; PEST; AVOID; CHEMICAL; PEST; HAZARD; BUILD; CONTAINER; SKIN; AGRICULTURE

Derwent Class: B04; B05; C03; C05; D16; D21; D22

International Patent Class (Main): A61K-038/48

International Patent Class (Additional): A01N-063/00; A61K-035/00

File Segment: CPI

17/5/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

009520183

WPI Acc No: 1993-213725/199326
XRAM Acc No: C93-094756

Tick decoy - comprises pheromone compsn. with attraction **, aggregation and attachment components, acaricide, matrix material and a device securing the matrix material to the host animal**

Patent Assignee: CENT INNOVATIVE TECHNOLOGY (INNO-N); UNIV FLORIDA (UYFL) ; UNIV OLD DOMINION (UYOL-N); ECOTECH INT INC (ECOT-N)
Inventor: BURRIDGE M J; MELTZER M I; NORVAL R A; SONENSHINE D E; YUNKER C E ; NORVAL R A I; YUNKER D F
Number of Countries: 027 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9311667	A1	19930624	WO 92US11323	A	19921211	199326	B
AU 9334266	A	19930719	AU 9334266	A	19921211	199344	
US 5296227	A	19940322	US 91809939	A	19911213	199411	
ZA 9304071	A	19940831	ZA 934071	A	19930609	199435	N

Priority Applications (No Type Date): US 91809939 A 19911213; ZA 934071 A 19930609
Cited Patents: GB 2169805
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9311667	A1	E	34	A01N-025/34	
Designated States (National): AU BB BR CA CH JP KR MW NL RU					
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE					
AU 9334266	A			A01N-025/34	Based on patent WO 9311667
US 5296227	A		13	A01N-025/08	
ZA 9304071	A		41	A01N-000/00	

Abstract (Basic): WO 9311667 A

Bont tick decoy comprises (a) a pheromone compsn. having an **attraction** component (I), an aggregation component (II) and an attachment component (III). The compsn. has 4 different chemical constituents and is capable of **attracting** unfed male, female and nymphal bont ticks; (b) an acaricide for destroying male, female and nymphal bont ticks; (c) a matrix material impregnated with (a) and (b), which is capable of releasing over time, sufficient amt. of (a) and (b) to **attract** and kill the male, female and nymphal ticks; (d) means for securing the matrix material to a host animal that exhales **CO2** and is susceptible to bont tick infestation. Also claimed is a method for protecting an animal from bont ticks comprising providing a decoy as above. Also claimed is a method for protecting an animal from flies comprising providing a tail band comprising (a) a pheromone selected from 15,19,23-trimethylheptatria-contane or 2-9-tricosene; (b) a **pesticide** selected from cyfluthrin, flumethrin, or permethrin; (c) a matrix material impregnated with (a) and (b) in the form of a subspherical shape (3cm long x 2 cm wide x 2cm thick) with a narrow slit for insertion of a sticky tape. The matrix material allows slow release of (b) over a period of time in an amt. sufficient to kill flies that visit the animal; and securing the tail band to the tail of the host animal so as to stimulate the movement of living flies, this being an additional **attractant** to hungry flies visiting the animal.

USE/ADVANTAGE - The device can be adopted for protection against other **pests** e.g. fly control. The attachment of a slow release pesticidal delivery system which can persist for several months and is non invasive (i.e. no puncturing of the skin) and does not depend on extremely aggressive adhesives with might rip, tear or otherwise damage the skin of the animal is an important advantage over prior art such as ear tags. The addition of species-specific pheromones to the device e.g. 15,19,23 trimethylheptatriacontane for tsetse flies and 2-9-tricosene for the common house fly controls the menace of these insect

Dwg.0/8
Title Terms: TICK; DECOY; COMPRISE; PHEROMONE; COMPOSITION; **ATTRACT** ; AGGREGATE; ATTACH; COMPONENT; ACARID; MATRIX; MATERIAL; DEVICE; SECURE; MATRIX; MATERIAL; HOST; ANIMAL
Derwent Class: A97; C03; C07
International Patent Class (Main): A01N-025/08; A01N-025/34
International Patent Class (Additional): A01N-053/00; A01N-057/00
File Segment: CPI

17/5/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009081224
WPI Acc No: 1992-208638/199226
XRAM Acc No: C92-094731
Preparing mixt. of liq. carbon dioxide **and soluble liq. chemical - by feeding chemical and known wt. of liq.** carbon dioxide **evacuated vessel**
Patent Assignee: CANADIAN LIQUID AIR LTD (CAAL); AIR LIQUIDE CANADA LTEE (CAAL)
Inventor: DIEGUEZ J M; LEE R G H
Number of Countries: 002 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
CA 2026945	A	19920405	CA 2026945	A	19901004	199226	B
US 5382422	A	19950117	US 91769245	A	19911001	199509	
CA 2026945	C	20001003	CA 2026945	A	19901004	200056	

Priority Applications (No Type Date): CA 2026945 A 19901004
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
CA 2026945	A		22	A01N-059/04	
US 5382422	A		6	A01N-025/06	
CA 2026945	C	E		A01N-059/04	

Abstract (Basic): CA 2026945 A
First vessel contg. a predetermined wt. of a liq. chemical soluble in **CO2** is connected to a second, evacuated, vessel and the liq. chemical is transferred to the second vessel. Subsequently liq. **CO2** is flowed through the first vessel into the second vessel until a predetermined wt. of liq. **CO2** is contained in the second vessel.
USE/ADVANTAGE - In forming a known mixt. of constant compsn. to be used as an enhanced **attractant** for biting **insects** . Liq. mixt. is an easy prod. to store and deliver large quantities of homogeneous gas mixt. using liq. withdrawal and subsequent vaporisation. Process allows simple prepn. of large quantities of liq. mixt. of known comps
Dwg.0/3
Title Terms: PREPARATION; MIXTURE; LIQUID; CARBON; DI; OXIDE; SOLUBLE; LIQUID; CHEMICAL; FEED; CHEMICAL; WEIGHT; LIQUID; CARBON; DI; OXIDE; EVACUATE; VESSEL
Index Terms/Additional Words: BITING; **INSECTS** ; **ATTRACTANT**
Derwent Class: C03; C07; Q39
International Patent Class (Main): A01N-025/06; A01N-059/04
International Patent Class (Additional): A01N-025/00; A01N-031/02; B67C-003/10
File Segment: CPI; EngPI

17/5/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007212253
WPI Acc No: 1987-209262/198730
XRAM Acc No: C87-087704
Amplification of nematode parasitic effect on insects **- by amplifying nematodes in medium contg. poultry intestines**
Patent Assignee: OJI PAPER CO (OJIP)
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 62135402	A	19870618	JP 85273382	A	19851206	198730	B
JP 92048763	B	19920807	JP 85273382	A	19851206	199236	

Priority Applications (No Type Date): JP 85273382 A 19851206
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 62135402	A		5		
JP 92048763	B		4	A01N-063/00	Based on patent JP 62135402

Abstract (Basic): JP 62135402 A
Amplification comprises amplifying the nematodes in a medium contg. poultry intestines. Suitable nematodes are Neoaplectana and Heterorhabditis. The infection type larva of nematode is **attracted** by **CO2** released from **insects** or uric acid and arginine contained in insect excrements. Nematode larva enter insect body via spiracle or anus and release consonant bacteria (e.g. Xanorhabdu nematophilus). The bacteria are rapidly amplified to cause insect blood poisoning and most **insects** are killed within 2 days.
Poultry include hen, dug, peacock, etc.. The intestine is pref. washed with water to remove contents in the intestine. Pref. intestine is juiced or cut into small fragments. The juice is absorbed by polyurethane sponge or the fragments are put on polyethylene sponge.
ADVANTAGE - Nematodes parasitic on **insects** (e.g., Neoaplectana spp. can kill **insects** . It can be used as biological agricultural chemicals. This method shows surprisingly higher amplifying effect than methods using heart, lever or kidney of sheep, cattle or pigs. The bark compost supporting **insecticide** nematodes can be used as soil conditioner.
Title Terms: AMPLIFY; NEMATODE; PARASITIC; EFFECT; INSECT; AMPLIFY; NEMATODE; MEDIUM; CONTAIN; POULTRY; INTESTINAL
Derwent Class: C03
International Patent Class (Additional): A01N-063/02
File Segment: CPI

17/5/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX

003216416
WPI Acc No: 1981-76973D/198142
Insect killing method - by spraying with pressurised liq. carbon dioxide **contg. organic phosphate or pyrethroid** insecticide
Patent Assignee: NIPPON SANSO (NIIO)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 56113703	A	19810907				198142	B

Priority Applications (No Type Date): JP 8015800 A 19800212
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 56113703	A		3		

Abstract (Basic): JP 56113703 A

Method comprises charging under pressure 0.03-20wt.% organic phosphate type **insecticide** or pyrethroid **insecticide** and liquefied **carbon dioxide** gas in a pressure vessel, and then spraying the liq. on to **insects** using the pressure of liquefied **carbon dioxide** gas.

Pref. organic phosphate type **insecticides** are Diazinon, Malathion, Phenitrothion, etc., and pyrethroid type **insecticides** are pyrethrin, allethrin, phthalthrin, etc. Adhesion of the active component to **insects** can be improved by addn. of organic solvent such as kerosine.

Since liquefied **carbon dioxide** gas is charged under pressure of about 70 kg/cm2 at normal temp., the **insecticide** can be finely atomised due to rapid swelling at the time of gasification, giving aerosol with particle size of 0.5-5 micron. This fine aerosol stays for a long time in the air, and is partic. effective in the control of flying **insects** . Also **carbon dioxide** gas **attracts** flying **insects** , and is easily handled without risk of combustion or explosion.

Title Terms: INSECT; KILL; METHOD; SPRAY; PRESSURISED; LIQUID; CARBON; DI; OXIDE; CONTAIN; ORGANIC; PHOSPHATE; PYRETHROID; INSECT

Derwent Class: C03

International Patent Class (Additional): A01N-025/06

File Segment: CPI

20/5/1 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO

07107746
TERMITE -CONTROLLING AGENT

PUB. NO.: 2001-335404 [JP 2001335404 A]
PUBLISHED: December 04, 2001 (20011204)
INVENTOR(s): FUJIMOTO IZUMI
APPLICANT(s): SUMITOMO CHEM CO LTD
APPL. NO.: 2001-073813 [JP 20011073813]
FILED: March 15, 2001 (20010315)
PRIORITY: 2000-083955 [JP 200083955], JP (Japan), March 24, 2000 (20000324)
INTL CLASS: A01N-025/10; A01M-001/20; A01N-025/00; A01N-025/34; A01N-043/36; A01N-043/76; A01N-047/40; A01N-051/00

ABSTRACT
PROBLEM TO BE SOLVED: To obtain a **termite** -controlling agent containing a large amount of a **bait** component, especially suitable for applying to damaged parts of buildings and routes of **termites** or treating under-floor grounds and the likes.

SOLUTION: In this **termite** -controlling agent an active ingredient for controlling **termites** (e.g. etoxazole, chlorfenapyr, acetamiprid or **thiamethoxam**) is included in a formed body prepared by press-processing shred paper.

20/5/2 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO

06467930 **Image available**
AQUEOUS BAITING AGENT FOR EXTERMINATION OF NOXIOUS **INSECTS**

PUB. NO.: 2000-053505 [JP 2000053505 A]
PUBLISHED: February 22, 2000 (20000222)
INVENTOR(s): TAKADA YASUSHI
APPLICANT(s): SUMITOMO CHEM CO LTD
APPL. NO.: 10-220666 [JP 98220666]
FILED: August 04, 1998 (19980804)
INTL CLASS: A01N-037/52; A01N-025/02; A01N-043/08; A01N-043/40; A01N-043/78; A01N-043/88; A01N-047/44; A01N-051/00

ABSTRACT
PROBLEM TO BE SOLVED: To obtain an aqueous baiting agent showing extremely high noxious insect-exterminating activity e.g. against cockroach by including a specific **neonicotinoid** -based compound at a specific amount and water at a specific amount.

SOLUTION: This agent is obtained by including (A) 0.0001-0.1 wt.% of a **neonicotinoid** -based compound of formulae I to III [A is 6-chloro-3-pyridinyl, 2-chloro-5-thiazolyl or the like; R1 is H, methyl, ethyl or the like; R2 is methyl, amino, 1-pyrrolidinyl or the like; R3 is methyl, propyl, propenyl or the like; X is N or CH; Y is cyano, nitro or trifluoroacetyl; Z is NH or S; D is O or N(CH3); (m) is 0 or 1; (n) is 2 or 3][e.g., 1-(tetrahydrofuran-3-yl)methyl-3-methyl-2- nitroguanidine], (B) 90-99.9999 wt.%, of water and, as necessary, (C) other active ingredient (s), intakeimproving ingredient (s), synergistic agent (s), erroneous

intakepreventive agent (s), preservative (s), perfume (s), **attractant** (s) and so on.

20/5/3 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013791050 **Image available**
WPI Acc No: 2001-275261/200129
XRAM Acc No: C01-083653

Insecticidal composition, for controlling soil insects , especially wireworms, at low application rates, comprises pyrazole derivative active agent, moisture retaining agent and vegetable flour

Patent Assignee: AVENTIS CROPSCIENCE SA (AVET)
Inventor: GAULLIARD J M; SEGAUD C; GAULLIARD J
Number of Countries: 094 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
FR 2798042	A1	20010309	FR 9911312	A	19990907	200129	B
WO 200117354	A1	20010315	WO 2000FR2460	A	20000907	200129	
AU 200072990	A	20010410	AU 200072990	A	20000907	200137	

Priority Applications (No Type Date): FR 9911312 A 19990907
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
FR 2798042	A1		16	A01N-043/56	
WO 200117354	A1	F		A01N-047/02	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200072990	A			A01N-047/02	Based on patent WO 200117354

Abstract (Basic): FR 2798042 A1

NOVELTY - An insecticidal composition (A) comprises:
(a) 0.001-5 % 1-(phenyl or 2-pyridyl)-pyrazole derivative (I);
(b) 0.05-10 % moisture retaining agent(s); and
(c) 40-99 % vegetable flour.

DETAILED DESCRIPTION - An insecticidal composition (A) comprises:
(a) 0.001-5 (preferably 0.05-1, especially 0.05-0.5) % of a pyrazole derivative of formula (I);
(b) 0.05-10 (preferably 0.1-0.5) % of (preferably organic) moisture retaining agent(s); and
(c) 40-99 (preferably 50-98, especially 70-97) % vegetable flour:
R1=halo, CN, Me or COMe;
R2=S(O)nR3;
R3=alkyl or haloalkyl;
R4=H, halo, NR5R6, S(O)mR7, COR7, COOR7, alkyl, haloalkyl, OR8 or N=CR9R10;
R5, R6=H, alkyl, haloalkyl, alkylcarbonyl or S(O)rCF3; or
R5 + R6=alkylene (optionally interrupted by 1 or 2 divalent heteroatoms, e.g. O or S);
R7=alkyl or haloalkyl;
R8=alkyl, haloalkyl or H;
R9=alkyl or H;
R10=phenyl or heteroaryl (both optionally substituted by one or more of halo or groups such as OH, alkoxy, alkylthio, CN or alkyl);
R11=H or halo;

R13=halo, haloalkyl, haloalkoxy, S(O)qCF3 or SF5;
m, n, q, r=0-2;
X=N or CR12; and
R12=H or halo.
Provided that if
R1=Me; then, R3=haloalkyl, R4=NH2, R11=Cl, R13=CF3 and X=N.
INDEPENDENT CLAIMS are included for:
(i) a method of insect control, involving applying, onto or preferably into soil to be **cultivated** , a composition (A') in form of granules of size 0.2-20 mm, where (A') is as for (A) except that the active agent (a) is (I) (preferred), imidacloprid, acetamiprid, nitenpyram or **thiamethoxam** ; and
(ii) a method of insect control involving applying, onto or into soil, a composition containing a dose of active agent which is not lethal on contact but lethal on ingestion.
ACTIVITY - Insecticide.
MECHANISM OF ACTION - None given.
USE - (A)/(A') are useful for controlling soil **insects** , especially wireworm, specifically in the protection of cereal (particularly maize), beet, sunflower, potato or rapeseed crops (all claimed). They are especially effective against wireworms of genus Agriotes, Athous or Limonius.
ADVANTAGE - (A)/(A') are highly effective against wireworms and related soil **insects** (including non-gregarious **insects**) at very low application rates, specifically doses of active agent which are lethal by ingestion but not by contact. This is probably because dead **insects** having ingested the compositions act as a **bait** for further **insects** , which consume the dead **insects** and thus themselves ingest the active agent. The formulations are also convenient to apply.
pp; 16 DwgNo 0/0
Title Terms: INSECT; COMPOSITION; CONTROL; SOIL; INSECT; LOW; APPLY; RATE; COMPRISE; PYRAZOLE; DERIVATIVE; ACTIVE; AGENT; MOIST; RETAIN; AGENT; VEGETABLE; FLOUR
Derwent Class: C02
International Patent Class (Main): A01N-043/56; A01N-047/02
International Patent Class (Additional): A01N-025/00; A01N-025/08; A01N-025/12; A01N-047/02; A01N-043/56; A01N-025-12; A01N-025-00
File Segment: CPI

20/5/4 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013215689 **Image available**
WPI Acc No: 2000-387563/200033
XRAM Acc No: C00-117589
Pesticidal composition useful for plant propagation comprises neonicotinoid **or phenylpyrazole insecticide and phenylamide, phenylpyrrole and/or triazole fungicides**
Patent Assignee: NOVARTIS AG (NOVS); SYNGENTA PARTICIPATIONS AG (SYGN); THINGENTA AG (THIN-N); NOVARTIS-ERFINDUNGEN VERW GES MBH (NOVS)
Inventor: SCHNEIDERSMANN F M; STYPA M L
Number of Countries: 090 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200028825	A1	20000525	WO 99EP8766	A	19991115	200033	B
AU 200016516	A	20000605	AU 200016516	A	19991115	200042	
BR 9915398	A	20010807	BR 9915398	A	19991115	200152	
			WO 99EP8766	A	19991115		
EP 1130968	A1	20010912	EP 99959277	A	19991115	200155	
			WO 99EP8766	A	19991115		
CN 1326319	A	20011212	CN 99813359	A	19991115	200225	

Priority Applications (No Type Date): US 98193004 A 19981116
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200028825	A1	E	33	A01N-051/00	
	Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW				
	Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW				
AU 200016516	A			A01N-051/00	Based on patent WO 200028825
BR 9915398	A			A01N-051/00	Based on patent WO 200028825
EP 1130968	A1	E		A01N-051/00	Based on patent WO 200028825
	Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI				
CN 1326319	A			A01N-051/00	

Abstract (Basic): WO 200028825 A1

NOVELTY - At least quaternary pesticide composition comprises a **neonicotinoid** compound (I) or phenylpyrazole compound (II) and 3 or more fungicides comprising a phenylamide compound (III), phenylpyrrole compound (II) and/or triazole compound (V).

DETAILED DESCRIPTION - At least quaternary pesticide composition comprises:

(1) a **neonicotinoid** compound of formula (I) or phenylpyrazole compound of formula (II) as insecticide or acaricide and

(2) at least three fungicides comprising phenylamide compounds of formula (III), phenylpyrrole compounds of formula (IV) and triazole compounds of formula (V).

A=2-chloropyrid-5-yl, 2-methylpyrid-5-yl, 1-oxido-3-pyridinio, 2-chloro-1-oxido-5-pyridinio, 2,3-dichloro-1-oxido-5-pyridinio, tetrahydrofuran-3-yl, 5-methyl-tetrahydrofuran-3-yl or 2-chlorothiazol-5-yl;

R=H, 1-6C alkyl, phenyl 1-4C alkyl, 3-6C cycloalkyl, 2-6C alkenyl or 2-6C alkynyl;

R1, R2=1-4C alkyl, 1-4C alkenyl, 1-4C alkynyl, C(O))CH3 or benzyl or

R1 + R2=n-ethyl, n-propyl, CH2OCH2, CH2SCH2, CH2NHCH2 or CH2N(CH3)CH2;

X=NNO2, NCN or CHNO2;

R1', R2'=H or halo (preferably both are not H);

R3=halo, haloalkyl, haloalkoxy or SF5;

R4=alkyl or haloalkyl;

R5=amino optionally mono- or disubstituted with alkyl, haloalkyl, acyl or alkoxycarbonyl;

n=0-2;

R1'', R'=Me;

R2''=methyl, ethyl or chlorine in the ortho position to the amino group;

R7, R8=H or methyl;

Y=OR4 or SR4;

R4=1-4C alkyl;

X=H or COR1''';

R1'''=1-6C alkyl (optionally substituted by halo or 1-3C alkoxy), 3-6C alkenyl, 3-6C alkynyl, 1-6C alkoxy (optionally substituted by halo or 1-3C alkoxy), 3-6C alkenyloxy or 3-6C cycloalkyl and

R12, R15, R18=H, halo, 1-3C alkyl, 1-3C alkoxy or nitro.

ACTIVITY - Pesticide; insecticide; fungicide; acaricide.

MECHANISM OF ACTION - None given.

USE - Useful for controlling **pests** for plant propagation, including the protection of crop seeds. The composition is effective against Phycomycetes e.g. phytophthora, basidiomycetes, ascomycetes,

adelomycetes and fungi imperfecti and are particularly used for protection of plant propagation material against fungi and fungal diseases including damping off, root rot and seed or soil borne blackleg diseases of vegetable organisms and plants, especially oil seed crops, rice and maize. The composition is also effective against **insects** and acarnia including Lepidoptera, Coleoptera, Orthoptera, Isoptera, Psocoptera, Anoplura, Mallophaga, Thysanoptera, Heteroptera, Homoptera, Hymenoptera, Diptera, Siphonaptera and Thysanura and is particularly used against crucifer flea beetles, root maggots, cabbage seedpod weevils and aphids. Target crops for protection include beet, canola, mustard seed, poppy, olives, sunflowers, coconut, castor oil plants, cocoa beans, groundnuts, soya and Crop Groups 5, 9, 11 and 15 of 40 CFR Sec. 180.41 (1995) and Federal Register: May 17 1995 (vol.60, No.95 pp26625-26643).

A mixture of **thiamethoxam** (400 g/100 kg seed), mefenoxam (7.5 g/100 kg seed), fludioxonil (2.5 g/100 kg seed) and difenconazole (24 g/100 kg seed) was applied to canola seed before germination (T) and a comparison was made with untreated seed (U). Emergence: T=23 plants/m, U=18 plants/m; vigor T=94%, U=18%; yield T=43 bushels/acre, U=28 bushels/acre.

ADVANTAGE - The active components have a synergistically enhanced pesticidal efficacy, especially against acarina and phytopathogenic fungi. The spectrum of activity of the composition is also enhanced and the application rate of the compounds can be reduced when used together. Formulation and handling are improved with increased stability and photostability. Crop yield can be improved with a lower requirement for fertilizer. The composition is well tolerated by warm-blooded animals, fish and plants.

pp; 33 DwgNo 0/0

Title Terms: PEST; COMPOSITION; USEFUL; PLANT; PROPAGATE; COMPRISE; INSECT; TRIAZOLE; FUNGICIDE
Derwent Class: C02; C03
International Patent Class (Main): A01N-051/00
International Patent Class (Additional): A01N-037/46; A01N-043/36; A01N-043/40; A01N-043/653; A01N-047/02; A01N-047/40
File Segment: CPI

20/5/5 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013181371 **Image available**
WPI Acc No: 2000-353244/200031
XRAM Acc No: C00-107755

Aqueous bait **composition for insect control - comprises** neonicotinoid **compounds, useful for controling e.g. cockroaches, ants,** termites , **flies and mosquitoes**

Patent Assignee: SUMITOMO CHEM CO LTD (SUMO)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 2000053505	A	20000222	JP 98220666	A	19980804	200031	B

Priority Applications (No Type Date): JP 98220666 A 19980804
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2000053505	A		5	A01N-037/52	

Abstract (Basic): JP 2000053505 A

NOVELTY - An aqueous **bait** composition contains **neonicotinoid** compound (I), (II) or (III) and water. DETAILED DESCRIPTION - An aqueous **bait** composition contains **neonicotinoid** compound of formula

A(CH2)mN(R1)(C(=XY))R2 (I), (II) or (III) at 0.00001-0.1 wt. % and water at 90-99.9999 wt. %. A = 6-chloro-3-pyridinyl, 2-chloro-5-thiazolyl, tetrahydrofuran-2-yl, etc.; R1 = H, methyl, ethyl, formyl, or acetyl; R2 = methyl, amino, methylamino, N,N-dimethylamino, etc.; R3 = methyl, ethyl, propyl, propenyl, or propinyl; X = N or CH; Y = cyano, nitro, or trifluoroacetyl; Z = NH or S; D = O or -N(CH3)-; m = 0 or 1; n = 2 or 3

USE - For controling **insects** , e.g., cockroaches, ants, **termites** , flies, mosquitoes, etc. ACTIVITY - Insecticidal. MECHANISM OF ACTION - None given.

ADVANTAGE - Exerts powerful insecticidal action at very low doses.

Dwg.0/0

Title Terms: AQUEOUS; **BAIT** ; COMPOSITION; INSECT; CONTROL; COMPRISE; COMPOUND; USEFUL; COCKROACH; ANT; **TERMITE** ; FLY; MOSQUITO

Derwent Class: C02

International Patent Class (Main): A01N-037/52

International Patent Class (Additional): A01N-025/02; A01N-043/08; A01N-043/40; A01N-043/78; A01N-043/88; A01N-047/44; A01N-051/00

File Segment: CPI

20/5/6 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

012551590

WPI Acc No: 1999-357697/199930

XRAM Acc No: C99-105818

XRPX Acc No: N99-266319

Wood preservative contains neutral hiba oil, hinoki oil or p-hydroxybenzoic acid ester

Patent Assignee: TAKEDA CHEM IND LTD (TAKE); TAKEDA YAKUHIN KOGYO KK (TAKE)

Inventor: IGARASHI A; OGURA K; YOSHIDA S

Number of Countries: 007 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9926481	A1	19990603	WO 98JP5289	A	19981124	199930	B
JP 11158009	A	19990615	JP 97322915	A	19971125	199934	
JP 11158020	A	19990615	JP 97322914	A	19971125	199934	
JP 11217310	A	19990810	JP 98329544	A	19981119	199942	
AU 9911767	A	19990615	AU 9911767	A	19981124	199944	
EP 968652	A1	20000105	EP 98954817	A	19981124	200006	
			WO 98JP5289	A	19981124		
CN 1244097	A	20000209	CN 98801993	A	19981124	200026	
KR 2000070319	A	20001125	WO 98JP5289	A	19981124	200131	
			KR 99706550	A	19990720		

Priority Applications (No Type Date): JP 97322915 A 19971125; JP 97322582 A 19971125; JP 97322914 A 19971125

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9926481	A1	J	38	A01N-065/00	
Designated States (National): AU CN KR US					
Designated States (Regional): DE FR					
JP 11158009	A		6	A01N-025/34	
JP 11158020	A		7	A01N-065/00	
JP 11217310	A		7	A01N-065/00	
AU 9911767	A			A01N-065/00	Based on patent WO 9926481
EP 968652	A1	E		A01N-065/00	Based on patent WO 9926481
Designated States (Regional): DE FR					
CN 1244097	A			A01N-065/00	
KR 2000070319	A			A01N-065/00	Based on patent WO 9926481

Abstract (Basic): WO 9926481 A1

NOVELTY - Wood presevative comprises at least one neutral hiba oil, hinoki oil and p-hydroxybenzoic acid.

DETAILED DESCRIPTION - Wood preservative comprises at least one neutral hiba oil, hinoki oil and p-hydroxybenzoic acid.

INDEPENDENT CLAIMS are also included for:

(1) a rot-proofing and insect-proofing system useful for a soil or water treatment procedure comprising a **bait** ; and

(2) a **bait** kit comprising a container with an entrance and a container of **bait** .

USE - As a wood preservative and rot and insect proofing system, especially protecting wooden structures such as houses from attack by **termites** .

ADVANTAGE - Neutral hiba oil is the byproduct from the removal of an acid oil containing hinokitiol from hiba oil.

pp; 38 DwgNo 0/3

Title Terms: WOOD; PRESERVE; CONTAIN; NEUTRAL; OIL; OIL; P; HYDROXYBENZOIC; ACID; ESTER

Derwent Class: C03; D22; F09; P14; P63

International Patent Class (Main): A01N-025/34; A01N-065/00

International Patent Class (Additional): A01M-017/00; A01N-025/00; A01N-025/02; A01N-025/10; A01N-025/12; A01N-025/28; A01N-037/02; A01N-037/40; A01N-043/16; A01N-043/40; A01N-043/50; A01N-043/56; A01N-059/14; B27K-003/34; B27K-003/50

File Segment: CPI; EngPI

28/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009587094
WPI Acc No: 1993-280640/199335
Related WPI Acc No: 1992-183032
XRAM Acc No: C93-125272
Controlling arthropods, partic. larvae of Diabrotica spp. - by applying 6-methoxy-2-benzoxazolinone with insecticide
Patent Assignee: UNIV COLORADO STATE RES FOUND (COLS)
Inventor: **BJOSTAD L B** ; HIBBARD B E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5238724	A	19930824	US 90626888	A	19901213	199335 B
			US 92866922	A	19920410	

Priority Applications (No Type Date): US 90626888 A 19901213; US 92866922 A 19920410
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5238724	A		5	A01N-043/76	Div ex application US 90626888 Div ex patent US 5112843

Abstract (Basic): US 5238724 A
Method comprises applying 6-methoxy-2-benzoxazolinone (I) together with an **insecticide** selected from one or more of carbamates, pyrethroids, nitromethylene heterocycles and nitroguanidines.
Pref. the carbamate is methonyl, carbofuran, aldecarb, furathiocarb, bendiocarb, carbaryl or thiodicarb. The heterocycle is a thiazine-cyfluthrin, cyhalothrin, cypermethrin, deltamethrin, esfenvalerat fenpropathrin, fenvalerate, flucythrinate, flumethrin, fluvalinate, MTI-500, permethrin, phenothrin, pipethrin, resmethrin, tefluthrin, tetramethrin or tralomethrin. Pref. the **insecticide** is tetrahydro-2-(nitromethylene) -2H-1,3-thiazine. USE/ADVANTAGE - The method can be used to control the larvae of Diabrotica sp., which are insect **pests** of corn. (I) acts as an attractant to the **pests** and the method can thus be used in a confusion strategy wherein several sources of (I) act as a behavioural disruptant that disorients the larvae and prevents them from locating **corn roots** , resulting in death by starvation. The method can also be used as a survey tool to monitor the population of **corn rootworm** larvae in a field. Such a tool would give the farmer advance notice of an impending infestation and allow appropriate control measured to be invoked in a timely manner
Dwg.0/0
Title Terms: CONTROL; ARTHROPOD; LARVA; DIABROTICA; SPECIES; APPLY; METHOXY ; BENZOXAZOLONE; INSECT
Derwent Class: C02
International Patent Class (Main): A01N-043/76
International Patent Class (Additional): A01N-063/04
File Segment: CPI

28/5/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009055642
WPI Acc No: 1992-183032/199222
XRAM Acc No: C92-083855
Control of arthropods, partic. larvae of diabrotica species - comprises applying 6-methoxy-2-benzoxazolinone to soil contg. them
Patent Assignee: UNIV COLORADO STATE RES FOUND (COLS)

Inventor: **BJOSTAD L B** ; HIBBARD B E
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5112843	A	19920512	US 90626888	A	19901213	199222	B

Priority Applications (No Type Date): US 90626888 A 19901213
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5112843	A		5	A01N-043/76	

Abstract (Basic): US 5112843 A

Method for controlling arthropods comprises applying 6-methoxy-2-benzoxazolinone (I) to soil contg. them.

Also claimed is a method for surveying for the presence of **corn rootworm** in a designated area comprising applying (I) in one or more locations in or near the designated area, attracting **corn rootworm** to the locations, monitoring the presence of **corn rootworm** and calculating the extent to which they are present in the designated area.

USE - The method is particularly used to control the larvae of Diabrotica spp. (including Northern, Southern and Western **corn rootworm**). (I) can also be used to control Diabrotica larvae in a confusion strategy many point sources of (I) to act as a behaviour attractant that disorients the larvae and prevents them from locating **corn roots** , resulting in death by starvation. Use of (I) as a survey tool to monitor the population of the larvae in a field would give the farmer advance notice of an impending infestation and allow appropriate control measures to be invoked in a timely manner.

Dwg.0/0

Title Terms: CONTROL; ARTHROPOD; LARVA; DIABROTICA; SPECIES; COMPRISE; APPLY; METHOXY; BENZOXAZOLONE; SOIL; CONTAIN
Derwent Class: C01; C02; C05
International Patent Class (Main): A01N-043/76
International Patent Class (Additional): A61K-031/42
File Segment: CPI

30/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010449821 **Image available**
WPI Acc No: 1995-351138/199545
XRAM Acc No: C95-153781

New 3-pyrimidinyl-benzaldehyde oxime derivs. - used as pre- and post-emergence herbicides, insecticides, acaricides and nematocides

Patent Assignee: UNIROYAL CHEM CO INC (USRU); UNIROYAL CHEM LTD (USRU)
Inventor: BROUWER W G; DALRYMPLE A W; FELAUER E E; MCDONALD P T

Number of Countries: 023 Number of Patents: 008
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9525725	A1	19950928	WO 95US2770	A	19950310	199545	B
US 5486521	A	19960123	US 94216207	A	19940321	199610	
JP 9505320	W	19970527	JP 95524663	A	19950310	199731	
			WO 95US2770	A	19950310		
BR 9507150	A	19970902	BR 957150	A	19950310	199741	
			WO 95US2770	A	19950310		
KR 97701701	A	19970412	WO 95US2770	A	19950310	199817	
			KR 96705188	A	19960919		
JP 2823359	B2	19981111	JP 95524663	A	19950310	199850	
			WO 95US2770	A	19950310		
TW 386019	A	20000401	TW 95107123	A	19950710	200057	
CN 1146203	A	19970326	CN 95192625	A	19950310	200106	

Priority Applications (No Type Date): US 94216207 A 19940321
Cited Patents: DE 4131038; EP 408382; EP 542685; EP 545206
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9525725	A1	E	46	C07D-239/54	
Designated States (National): BR CA CN JP KR					
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE					
US 5486521	A		12	C07D-239/54	
JP 9505320	W		50	C07D-239/56	Based on patent WO 9525725
BR 9507150	A			C07D-239/54	Based on patent WO 9525725
KR 97701701	A			C07D-239/54	Based on patent WO 9525725
JP 2823359	B2		22	C07D-239/56	Previous Publ. patent JP 9505320 Based on patent WO 9525725
TW 386019	A			A01N-043/54	
CN 1146203	A			C07D-239/54	

Abstract (Basic): WO 9525725 A

3-(3,6-Dihydro-2,6-di(thi)oxo -4-trifluoromethyl-1(2H)-pyrimidinyl)- benzaldehyde oxime derivs. of formula (I) are new: Z = pyrimidinyl deriv. gp. of formula (Z1) or (Z2): Q = H or Me if Z = (Z1); or H if Z = (Z2); R1 = H, 1-6C hydrocarbyl, CH2OH, alkaline earth metal or organic base salt; R2, R6 = H, halogen or 1-4C hydrocarbyl; R3 = H, halogen, CN, NO2, 1-6C linear, branched or cyclic alkoxy, 3-6C linear, branched or cyclic alkenyloxy, 1-6C alkylthio or 1-6C hydrocarbyl; R4 = H or 1-4C hydrocarbyl; R5 = 2-hydrofuranylmethyl or 1-6C hydrocarbyl (both opt. substd. by 1-4C alkoxy, SiMe3 or 1-6C hydrocarbyl by up to 11 halogen); or -R3-COOR7; Re = 1-3C alkylidene (opt. substd. by 1-6C alkyl or by 1-6 halogens); R7 = 1-6C hydrocarbyl or -Re-C6(H)5-m(R8)m; m = 0-5; R8 = halogen, NO2, CN, COOH, 1-4C hydrocarbyl, 1-4C alkoxy, (1-3C) alkoxycarbonyl or -R3-COR9; R9 = 1-4C hydrocarbyl; phenyl substd. by 1-4C hydrocarbyl, 1-4C alkoxy, 1-4C alkyl (sic) or halogen); or benzoyl (opt. monosubstd. by 1-4C alkoxy, 1-4C hydrocarbyl or halogen); X,Y = O or S.

USE - (I) are herbicides and pesticides, i.e. acaricides, nematocides and esp. insecticides, useful in crop protection. They are

esp. useful for combatting weed-like grasses and broad-leaf weeds (pre- or post-emergence), plant-hoppers and aphids (all claimed). Tests demonstrate activity against rice plant-hoppers Sogatodes oryzicola, systemic and foliar), Southern **corn rootworm** (Diabrotica undecimpunctata), green peach aphids (Myzus persicae) and the weeds Abutilon threophrasti, Datura stramonium, Ipomea purpurea, Panicum virgatum, Echinochloa crus-galli and Setaria viridis. As herbicides, application rate is 0.022-25 kg/ha (pre- or post emergence).

ADVANTAGE - (I) are environmentally acceptable and effective at low concns.

Dwg.0/0

Title Terms: NEW; PYRIMIDINYL; BENZALDEHYDE; OXIME; DERIVATIVE; PRE; POST-EMERGENCE; HERBICIDE; INSECT; ACARID; NEMATODE

Derwent Class: C02

International Patent Class (Main): A01N-043/54; C07D-239/54; C07D-239/56

International Patent Class (Additional): A61K-031/505; C07D-239/22; C07D-405/12

File Segment: CPI

32/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013352596
WPI Acc No: 2000-524535/200047
Related WPI Acc No: 2001-483229
XRAM Acc No: C00-155843

Processing corn grain to produce corn oil and/or meal product comprises flaking corn grain and extracting oil from it

Patent Assignee: CARGILL INC (CRGI); ANDERSON B R (ANDE-I)
Inventor: ANDERSON S C; ULRICH J F
Number of Countries: 088 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200047702	A1	20000817	WO 2000US1861	A	20000127	200047	B
AU 200026302	A	20000829	AU 200026302	A	20000127	200062	
US 20010014750	A1	20010816	US 99249280	A	19990211	200149	
			US 2001840372	A	20010423		
EP 1151066	A1	20011107	EP 2000904566	A	20000127	200168	
			WO 2000US1861	A	20000127		
US 6313328	B1	20011106	US 99249280	A	19990211	200170	
BR 200008201	A	20020205	BR 20008201	A	20000127	200213	
			WO 2000US1861	A	20000127		

Priority Applications (No Type Date): US 99249280 A 19990211; US 2001840372 A 20010423
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200047702	A1	E	19	C11B-001/04	
Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW					
AU 200026302	A			C11B-001/04	Based on patent WO 200047702
US 20010014750	A1			C11B-001/00	Cont of application US 99249280
EP 1151066	A1	E		C11B-001/04	Based on patent WO 200047702
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
US 6313328	B1			C07C-001/00	
BR 200008201	A			C11B-001/04	Based on patent WO 200047702

Abstract (Basic): WO 200047702 A1

NOVELTY - A method for processing corn grain comprises flaking corn grain and extracting an oil from the flaked corn grain. The corn grain has an oil content of at least 8%.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) a method of selling corn seed comprising offering corn seed for sale which produces corn grain having a total oil content of at least 8%, and advertising that the corn grain may be processed by flaking; and

(2) an article of manufacture comprising packaging material, a label accompanying the packaging material and seed corn, which produces grain, contained within the packaging material.

USE - To produce a corn oil and/or a meal product; for processing other oil seeds such as soybeans.

ADVANTAGE - The process is effective for processing 100-3000 tons of corn per day (claimed). The process has low energy cost, less expensive equipment, low maintenance costs and better oil quality. The extracted corn oil does not have dark color and does not require additional processing step. Oil lost during oil processing is minimized. The extraction of oil from corn is done without steeping or

heating the corn at elevated temperatures. The corn grain is not required to be separated from its component parts.

pp; 19 DwgNo 0/0

Title Terms: PROCESS; CORN; GRAIN; PRODUCE; CORN; OIL; MEAL; PRODUCT; COMPRISE; FLAKE; CORN; GRAIN; EXTRACT; OIL

Derwent Class: D13; D23

International Patent Class (Main): C07C-001/00; C11B-001/00; C11B-001/04

International Patent Class (Additional): C11B-001/06; C11B-001/10

File Segment: CPI

32/5/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

012541606

WPI Acc No: 1999-347712/199929

XRAM Acc No: C99-102392

Preparation of a beer flavor concentrate

Patent Assignee: GREEN BAY BEER CO (GREE-N)

Inventor: TRIPP M L

Number of Countries: 081 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9927070	A1	19990603	WO 98US24740	A	19981119	199929	B
AU 9914653	A	19990615	AU 9914653	A	19981119	199944	
EP 1070116	A1	20010124	EP 98958655	A	19981119	200107	
			WO 98US24740	A	19981119		
CN 1279711	A	20010110	CN 98811395	A	19981119	200128	
KR 2001032323	A	20010416	KR 2000705535	A	20000520	200163	
JP 2001524305	W	20011204	WO 98US24740	A	19981119	200203	
			JP 2000522212	A	19981119		

Priority Applications (No Type Date): US 97976223 A 19971121

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9927070	A1	E	19	C12C-011/00	
Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
AU 9914653	A			C12C-011/00	Based on patent WO 9927070
EP 1070116	A1	E		C12C-011/00	Based on patent WO 9927070
Designated States (Regional): NL					
CN 1279711	A			C12C-011/00	
KR 2001032323	A			C12C-005/02	
JP 2001524305	W		17	C12C-011/00	Based on patent WO 9927070

Abstract (Basic): WO 9927070 A1

NOVELTY - A beer flavor concentrate which can be shipped to a destination then converted into beer through the addition of a diluent, forming a wide variety of beer products.

DETAILED DESCRIPTION - A beer flavor concentrate from which a beer product can be made through the addition of water, **carbon dioxide** and alcohol, has a color of 25-60degrees SRM (standard reference method), a bitterness of 20-60 BU (bitterness units), and an alcohol level of 1-6wt%.

INDEPENDENT CLAIMS are also included for brewing the concentrate, by preparing a wort using hops having a color in the range L10-L300, hopping it, and fermenting.

USE - The process forms a concentrate which can be used to make

beer which is stable or not stable to light.

ADVANTAGE - Savings can be made in transportation costs, by adding inexpensive alcohols to the concentrate at a final destination.

pp; 19 DwgNo 0/0

Title Terms: PREPARATION; BEER; CONCENTRATE
Derwent Class: D16
International Patent Class (Main): C12C-005/02; C12C-011/00
International Patent Class (Additional): C12C-012/00; C12G-003/04
File Segment: CPI

32/5/3 (Item 3 from file: 350)

012087551
WPI Acc No: 1998-504462/199843
XRAM Acc No: C98-152177

Softening very hard water for drinking and food industry use - by treating successively with calcium hydroxide, potassium carbonate and potassium hydroxide, subjecting to alternating current, and acidifying

Patent Assignee: TARKHANOV O V (TARK-I)
Inventor: TARKHANOV A O; TARKHANOV O V; TARKHANOVA L S
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2106316	C1	19980310	RU 9342332	A	19930825	199843	B

Priority Applications (No Type Date): RU 9342332 A 19930825
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2106316	C1		8	C02F-005/06	

Abstract (Basic): RU 2106316 C

The water is heated to 35-50 deg. C, and mixed with calcium hydroxide in an amount given by the relation: 37z + 1.7c + 1.8m, where z is the provisional hardness of the water in mmole/l, c is the concentration of **carbon dioxide** , and m is the concentration of magnesium oxide. It is then mixed with an alkali metal compound, held in an alternating field, and finally neutralised with phosphoric acid to pH 8, and the precipitate separated.

Suitable alkaline reagent is potassium carbonate, used in an amount of 48 - 53z', where z' is the constant hardness of the water, mixed with potassium hydroxide in an amount of not more than 50 mg./l., added not less than 30 minutes after addition of the carbonate.

The potassium carbonate is obtained from wastes, either as an extract of sunflower seed ash containing 15% carbonate, or from **distillery grain** ash containing 81-96% carbonate.

Water with hardness 11.6 mg.equivalents/l. was heated to 35 deg. C and mixed with 0.2 g./l. calcium hydroxide for 1.33 hours, then with 0.336 g./l. potassium carbonate for 6 hours, and finally with 0.05 g./l. potassium hydroxide for 0.83 hours. The water was subjected to an alternating field of 60 volts and 0.5 amps for 150 seconds, then settled for 3 hours. It was finally separated from the residue and acidified with 0.01 g./l. of phosphoric acid to give water with hardness 1.0 mg.equivalents/l.

USE - The process softens natural highly hard water for drinking, or for use in the food industry, and can also be applied in treatment of liquid manure and wastes from the chemical and food industries

ADVANTAGE - The quality of the softened water is higher than that obtained with previous reagents, and hardness is reduced 10-fold

Dwg.0/0

Title Terms: SOFTEN; HARD; WATER; DRINK; FOOD; INDUSTRIAL; TREAT;

SUCCESSION; CALCIUM; HYDROXIDE; POTASSIUM; CARBONATE; POTASSIUM; HYDROXIDE; SUBJECT; ALTERNATE; CURRENT; ACIDIC
Derwent Class: D15; J01
International Patent Class (Main): C02F-005/06
File Segment: CPI

32/5/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

004788024
WPI Acc No: 1986-291365/198644
XRAM Acc No: C86-126276
Prepn. of ethanol and dried distillers grain **- with drying of the grain by heat produced from flash cooling cooking effluents etc**
Patent Assignee: ANDERSON C G (ANDE-I)
Inventor: ANDERSON C G
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4617270	A	19861014	US 83494401	A	19830513	198644	B

Priority Applications (No Type Date): US 83494401 A 19830513
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4617270	A		6		

Abstract (Basic): US 4617270 A
EtOH (or other alcohols) are prepd. from naturally occurring organic materials (I) as follows: (a) a mash is prepd. from (I) and hot H2O; (b) the mash is steam cooked in the presence of an enzyme (II); (c) the resulting effluent (aq. liq. contg. starch and a spent insol. mash) is flash cooled to form flash steam; (d) the pressure of the flash steam is increased; (e) the effluent is saccharified in the presence of an enzyme (III) to convert the starch to a sugar; (f) the effluent is fermented to form a vapour (including **CO2**) and an aq. liq. (including EtOH); (g) the aq. liq. in (f) contg. EtOH is sepd. from the insol. spent mash; and (b) the higher pressure steam and the sepd. insol. mash are heat exchanged to effect at least a partial drying of the mash.
ADVANTAGE - Interposing at least one flash cooling zone between the cooking and saccharifying zones to effect flashing of the hot mask produces at least one source of heat for drying the **distillers grain** .
Title Terms: PREPARATION; ETHANOL; DRY; DISTIL; GRAIN; DRY; GRAIN; HEAT; PRODUCE; FLASH; COOLING; COOK; EFFLUENT
Derwent Class: D16
International Patent Class (Additional): C12C-011/00; C12P-007/06
File Segment: CPI

32/5/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

003528510
WPI Acc No: 1982-76498E/198236
Vapour phase dehydration of aq. alcohol mixt. - using cellulose, starch, corn cobs etc. as dehydrating agent
Patent Assignee: PURDUE RES FOUND (PURD)
Inventor: LADISCH M R; TSAO G T
Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4345973	A	19820824				198236 B

Priority Applications (No Type Date): US 80181244 A 19800825

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4345973	A		4		

Abstract (Basic): US 4345973 A

Water is sepd. from aq. alcohol, esp. ethanol (I) mixt. by contacting the vapour of the mixt. with cellulose, carboxymethylcellulose, cornmeal, **cracked corn** , corn cobs, wheat straw, bagasse, starch, hemicellulose, wood chips, other grains or other agricultural residues. Alcohol is obtained with less than 5% water. The aq. (I) may contain 5-90% (I) but the process is esp. useful for fermentation liquors contg. 5-12% (I). Pref. a carrier gas is used such as air, N2 or **CO2** . The dehydrating agents are regenerated at a temp. above the dew pt. of the alcohol, e.g. about 90 deg. C.

Fuel grade (I) can be obt. from aq. mixt. in a more energy efficient way than by traditional distn. The dehydrating agents are cheap and readily available and can be dried and used repeatedly

Title Terms: VAPOUR; PHASE; DEHYDRATE; AQUEOUS; ALCOHOL; MIXTURE; CELLULOSE ; STARCH; CORN; COB; DEHYDRATE; AGENT

Derwent Class: A97; E17

International Patent Class (Additional): B01D-003/34; B01D-053/04; B01J-020/24; C07C-029/80

File Segment: CPI

```
File   9:Business & Industry(R) Jul/1994-2002/Jun 05
         (c) 2002 Resp. DB Svcs.
File  15:ABI/Inform(R) 1971-2002/Jun 06
         (c) 2002 ProQuest Info&Learning
File  16:Gale Group PROMT(R) 1990-2002/Jun 05
         (c) 2002 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File  18:Gale Group F&S Index(R) 1988-2002/Jun 05
         (c) 2002 The Gale Group
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File 570:Gale Group MARS(R) 1984-2002/Jun 05
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         (c) 2002 The Gale Group
File 621:Gale Group New Prod.Annou.(R) 1985-2002/Jun 05
         (c) 2002 The Gale Group
File 624:McGraw-Hill Publications 1985-2002/Jun 06
         (c) 2002 McGraw-Hill Co. Inc
File 635:Business Dateline(R) 1985-2002/Jun 06
         (c) 2002 ProQuest Info&Learning

Set     Items   Description
S1     108472   INSECTS OR TERMITE? OR PESTS OR BUGS OR PARASITE?
S2      71063   CARBON()DIOXIDE OR CO2
S3        553   CORNROOT? OR CORN()ROOT? OR ROOTWORM? OR ROOT()WORM?
S4        192   THIAMETHOXAM OR THIANICOTINYL? OR NEONICOTIN?
S5       1423   CORN()COB()GRITS OR (SPENT OR DISTILLER?)(2N)GRAIN OR CRAC-
             KED()CORN? ? OR MALTED()(BARLEY OR GRAIN)
S6     119663   PESTICIDE? OR INSECTICIDE?
S7    2223721   ATTRACT? OR LURE OR LURES OR LURING OR SNARE OR SNARES OR -
             SNARING OR BAIT OR ENTICE?
S8     191835   SOWING OR PLANTING OR CULTIVAT?
S9       2338   INTEGRATED()PEST()MANAGEMENT
S10    111353   ENVIRONMENT?(5N)FRIEND? OR NON()TOXIC?
S11         0   S1(S)S2(S)S3
S12         4   S1 AND S2 AND S3
S13         4   RD (unique items)
S14       935   S1 AND S2
S15       124   S14/TI,LP\
S16       263   S14/TI,LP
S17        24   S16 AND (S9 OR S10)
S18         1   S17 AND S8
S19         1   S18 NOT S13
S20        13   S17 AND S7
S21        12   RD (unique items)
S22        12   S21 NOT (S13 OR S18)
S23        76   ACTARA
S24        72   S23 AND S6
S25         0   S24 AND S2
S26         7   S24 AND S7
S27         5   RD (unique items)
S28         5   S27 NOT (S13 OR S18 OR S21)
S29      1206   S7(2N)S1
S30        22   S29(S)S2
S31        19   RD (unique items)
S32        17   S31 NOT (S13 OR S18 OR S21 OR S27)
S33        17   S32 AND (S7 OR S8 OR S9 OR S10)
S34        50   MOSQUITO()MAGNET?
S35        46   S34/1998:2002
```

S36	4	S34 NOT S35
S37	2	RD (unique items)
S38	2	S37 NOT (S13 OR S18 OR S21 OR S27 OR S31)

13/3,K/1 (Item 1 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)

01491206 01-42194
To Beat a Parasite , **Confuse It**
Gross, Neil; Veomett, Elizabeth
Business Week n3542 PP: 72 Sep 1, 1997
ISSN: 0739-8395 JRNL CODE: BWE

To Beat a Parasite , **Confuse It**

ABSTRACT: Researchers at Colorado State University have devised an environmentally friendly way to deal with the **rootworms** that plague cornfields. **Rootworm** larvae navigate to food sources by detecting **carbon dioxide** . By strategically adding **carbon dioxide** to the soil, the worms can be steered away from the plant roots.

13/3,K/2 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

05220252 Supplier Number: 47962332 (USE FORMAT 7 FOR FULLTEXT)
Parasites **A Problem? Try A Chemical Scarecrow**
The Food Institute Report, v70, n36, pN/A
Sept 8, 1997
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 102

(USE FORMAT 7 FOR FULLTEXT)
Parasites **A Problem? Try A Chemical Scarecrow**
TEXT:
Researchers at Colorado State University may have found a possible solution to eliminating **root worms** which damage corn crops without theuse of pesticides, according to Business Week. Scientists have been...

...which use yeast and sodium bicarbonate to releasecarbon dioxide into the soil, thereby luring the **root worm** larvae away from the roots, and causing them to die. This tactic was developedbased on the recent research indicating that **root worm** larvae find food sources by detecting the **CO2** which is emitted by the **corn roots** . In addition, if the larvae do not reach the roots within 24 hours, they die.

13/3,K/3 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

22953302 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Rain in Illinois Helps Control Rootworm **Population**
Anne Cook
KRTBN KNIGHT-RIDDER TRIBUNE BUSINESS NEWS (NEWS-GAZETTE - CHAMPAIGN, ILL.)
May 22, 2002
JOURNAL CODE: KNGC LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 615

(USE FORMAT 7 OR 9 FOR FULLTEXT)
Rain in Illinois Helps Control Rootworm **Population**

... Ill.--There's one bright spot in the otherwise gloomy East Central Illinois weather picture.

Rootworms don't like rain.

University of Illinois entomologist Mike Gray says the **pests** ' survival rate will likely be low this year because of the wet conditions that have...

...which we've had saturated soils and delayed planting are typically years that work against **rootworms** getting established," Gray said. "They overwinter as eggs and the larvae typically hatch in late...
... plots in Urbana although we have at Monmouth and DeKalb. We're testing hybrids and **rootworms** and transgenic hybrids, and in that kind of research, you like to see as much injury as possible to challenge the product."

Gray said **rootworms** were plentiful last year so there are probably a lot of eggs out there in...

... some planting is done, roots won't grow very well and they'll produce little **carbon dioxide** ," he said. " **Corn rootworms** rely on a gradient of **carbon dioxide** in the soil to help them find the roots, so they'll have a lot...

... lower densities this year, which would be a stark contrast to 2000 and 2001, big **rootworm** years," Gray said.

In the 1990s, **rootworms** confounded scientists by changing their egg-laying practices to adapt them to rotation, laying eggs...

...leave the insecticide off the planter this year.

"We don't want farmers to think **rootworms** will disappear," he said. "It still makes sense to us to use insecticide. As we...

13/3,K/4 (Item 1 from file: 624)

00876365
TO BEAT A PARASITE , **CONFUSE IT**
Business Week September 1, 1997; Pg 72; Number 3542
Journal Code: BW ISSN: 0007-7135
Section Heading: Developments to Watch
Word Count: 177 *Full text available in Formats 5, 7 and 9*

BYLINE:
EDITED BY NEIL GROSS
Elizabeth Veomett

TO BEAT A PARASITE , **CONFUSE IT**

TEXT:
... and golden splendor. Hidden underground, however, are the ravages of a billion-dollar blight called **rootworm** . Pesticides are the standard solution. But researchers at Colorado State University think there is a better, more environmentally friendly way to deal with the **parasites** : Befuddle them.

The scientists' idea hinges on the recent discovery that **rootworm** larvae navigate to food sources by detecting the **carbon dioxide** that **corn roots** emit. If the larvae don't make it to the roots within 24 hours of...

... bicarbonate. The researchers concocted separate recipes of baking soda and yeast, chemically primed to release **CO2** . Then they tested each one on separate small plots of land. Both recipes produced enough **CO2** to steer the larvae away from the roots, causing them to starve. The scientists are ...

SPECIAL FEATURE:
Photograph: CORNY: **Rootworms** love **CO2**
BOB KALMBACH, UNIVERSITY OF MICHIGAN

19/3,K/1 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

21779553 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Designer jeans from designer genes
MALAYSIAN BUSINESS
February 16, 2002
JOURNAL CODE: FMAB LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 1369

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... of blue jeans are cotton fabric and indigo dye. Both can now be produced with **environmentally friendly** methods of biotechnology.
Gene spliced cotton has a marked difference from other commercial varieties due...

... generate the protein. It is then tested to prove it is toxic to certain insect **pests** of cotton but safe to humans and other animals.
... half of the pesticides used in the entire agricultural sector.
Perhaps the greatest incentive for **planting** Bt cotton is to benefit environmental quality. Aquatic wildlife is endangered as a result of...

22/3,K/1 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

06221135 Supplier Number: 54216080 (USE FORMAT 7 FOR FULLTEXT)
Pest Control Products.
Pest Control, v67, n3, p100(1)
March, 1999
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Refereed; Trade
Word Count: 1133

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
American Biophysics Corp. presents the Mosquito Magnet, a **carbon dioxide attractant** trapping system for mosquitoes. The patent-pending, freestanding unit features a catalytic converter that produces the needed **carbon dioxide** , heat and humidity from bottled propane gas.
... 203
J.T. Eaton & Co., Inc. introduces a ready-to-use, boric acid-based liquid **bait** to control entire ant colonies, as well as cockroach infestations. The product, called Dr. Moss's Liquid **Bait** System, controls several species of common household ants, including carpenter, Argentine and odorous house ants...
...and American cockroaches. Available in 12-ounce "no-mess" dispenser bottles or gallon containers, the **bait** is approved by the Environmental Protection Agency (EPA) for use in schools, restaurants, food processing...

...the odor-causing compounds, along with any organic odor-causing material. The product, which is **non - toxic** , non-pathogenic and non-caustic, is available in one-quart, one-gallon and five-gallon...

...588-7350. Circle #211
IPM:BarCode from A&K Computers lets pest controllers who practice **integrated pest management** (IPM) monitor their field operations and generate detailed performance guidelines for every customer they service... inspector.
For more information, call 800/446-5260. Circle #214
RELATED ARTICLE: Spotlight On: Cockroach **Bait**
Target Roaches with Deadly Precision
Siege gel from American Cyanamid features the Xactadose precision baiting system, which lets users deliver a precise, premeasured dose of **bait** directly into roach harborages. Its powerful formula can achieve control within 24 to 72 hours...

...can control cockroaches for up to six months.
Now there are multiple choices for the **bait** gel's application. Use the Xactadose system or use the new 30-gram flex-syringe...

22/3,K/2 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

04327547 Supplier Number: 46343721 (USE FORMAT 7 FOR FULLTEXT)
Stored Product Pests **Push PCO Threshold**
Pest Control, p44
May, 1996
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Refereed; Trade
Word Count: 1756

Stored Product Pests **Push PCO Threshold**

... product, while minimizing costs and environmental exposure.
Stored products provide an ideal opportunity to develop **integrated pest management** (IPM) programs because managers have the ability to control temperature, moisture content, storage time, market...of at least every three weeks; trapping duration of four to seven days; and pheromone, **bait** and temperature.
The use of heat has been shown to be an effective pest management...

22/3,K/3 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

19262420 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Norwegian Government: A good environmental budget
M2 PRESSWIRE
October 11, 2001
JOURNAL CODE: WMPR LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 1217

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... 9.3 per cent in 2002. The government's objectives include more intensive research into **CO2** -free gas-power technology and work on PCBs. The latter will be intensified through preventive...
... The government also aims to further develop the outdoor recreation potential in beach areas and **attractive** neighbourhood sites, especially in cities and towns. The government proposes additionally to simplify hunting and...

...environmental improvement in Finnmark.
Urban development
The government sets great store by measures to promote **environment** -friendlyurban development. Funds are earmarked for **environmentally** degraded areas in cities, pilot projects and collaborative initiatives involving the public sector, the business...

22/3,K/4 (Item 2 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

18353259 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Household Pests **Require Multitude of Extermination Tactics**
Alan J. Heavens
KRTBN KNIGHT-RIDDER TRIBUNE BUSINESS NEWS (PHILADELPHIA INQUIRER - PENNSYLVANIA)
August 12, 2001
JOURNAL CODE: KPIN LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 1265

(USE FORMAT 7 OR 9 FOR FULLTEXT)
Household Pests **Require Multitude of Extermination Tactics**

When it comes to household **pests** , **termites** , it seems, are just the tip of the iceberg.
Bugs of every description -- and some not so easy to identify -- can occupy every nook and...
... food makes this the first place to look. Cockroaches don't need much food to **lure** them because they are scavengers.
If you like to have a midnight snack in bed...

...glass of water on the table near your bed, you stand a good chance of

attracting roaches.
Have a dog? Holbrook raises cockroaches in his lab and feeds them dog food...

...you step on it.
None of them will eat you, but ants tend to be **attracted** to the stuff you eat. Fire ants, found in warmer climates, will attack and sting ...

...queens die, too.
For carpenter ants, try to eliminate the source of moisture that will **attract** them by caulking and repairing leaks and dripping faucets.
Bio-Trax, an Ocala, Fla., company, has come up with what it says is an **environmentally friendly** way of eliminating fire ants.
A blend of federally approved carbon dioxide gases is injected...house with the smell or use pheromone-based traps, which use female sex pheromones to **lure** males. These are also good for pantry moths. Both closets and pantries need to be...

... in good repair, and tell the kids to keep the door closed. Fruit flies are **attracted** by rotting fruit and garbage, so get rid of the stuff. Try a flyswatter.
Ladybugs...

22/3,K/5 (Item 3 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

15374048 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Kansas State University: K State will lead Consortium for Stored Product Pest Management
M2 PRESSWIRE
February 27, 2001
JOURNAL CODE: WMPR LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 847

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... fact of life: stored grain is an open invitation to beetles, weevils, moths and other **insects** .
Managers at bulk grain storage facilities have used chemical pesticides and fumigants to keep insect...
... at K-State between grain scientists, stored product entomologists, and USDA. That core of expertise **attracted** industry and governmental mainstays like American Institute of Baking and USDA's Grain Marketing Production...

...biological control of insects has received enormous scientific attention of late through a program called **integrated pest management** . **Integrated pest management** fostered a "knowledge-based" approach to insect control, said Ramaswamy.
"It's an ancient idea...

...can we modify insect behavior, use growth regulators, enlist the natural enemies, or use natural **attractants** to **lure** insects to a trap? You name it, and we're looking at it as a...

22/3,K/6 (Item 4 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

13382144 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Science: A taste for toxins: Some little creatures will eat just about anything. Which is handy for the genetic engineers who want to clean up polluted land
CLAIRE COCKCROFT
GUARDIAN
October 19, 2000
JOURNAL CODE: FGDN LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 812

(USE FORMAT 7 OR 9 FOR FULLTEXT)

Genetically engineered **bugs** and plants with an appetite for toxic waste are part of today's arsenal for...

... blot on the landscape. However, these "brownfield" sites could be cleaned in a cost-effective, **environmentally - friendly** way for commercial re-development.
... built on these sites, leaving "greenfield sites" free from urban sprawl. Bioremediation is an evironmentally- **attractive** and economical alternative to energy-intensive incineration methods or chemical-based soil washing processes which...

22/3,K/7 (Item 5 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
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13361155 (USE FORMAT 7 OR 9 FOR FULLTEXT)
A taste for toxins: Some little creatures will eat just about anything. Which is handy for the genetic engineers who want to clean up polluted land, writes Claire Cockcroft
GUARDIAN
October 19, 2000
JOURNAL CODE: FGDN LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 812

(USE FORMAT 7 OR 9 FOR FULLTEXT)

Genetically engineered **bugs** and plants with an appetite for toxic waste are part of today's arsenal for...

... blot on the landscape. However, these 'brownfield' sites could be cleaned in a cost-effective, **environmentally - friendly** way for commercial re-development.
... built on these sites, leaving 'greenfield sites' free from urban sprawl. Bioremediation is an evironmentally- **attractive** and economical alternative to energy-intensive incineration methods or chemical-based soil washing processes which...

22/3,K/8 (Item 6 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
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05724318 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Stop bugging me
MICHAL YUDELMAN
JERUSALEM POST, p30
June 14, 1999
JOURNAL CODE: WJPT LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 1502

(USE FORMAT 7 OR 9 FOR FULLTEXT)

...the bug-and-insect plague.
Local authorities use pesticides to keep cockroaches, mosquitoes and other **bugs** out of residential areas.
... female mosquito needs blood to enable fertilization of its eggs. Certain kinds of mosquitoes are **attracted** to human beings, showing preferences for certain human odors, body heat, perspiration, and even the ...

...director of the Environment Ministry's pest surveillance and control.
"We assume mosquitoes are more **attracted** to certain people than to others, and we know they come to a place for a reason, not at random. Well-lit places **attract** them," he says.
IF DETERMINING what **attracts** the bugs is difficult, getting rid of them is problematic in an ecology- conscious world...

...Shalom says.
An electrical device made by the Israeli Kennedy company generates a light which **attracts** insects. Before they reach the light, they collide with a coil which kills them. The...

...picnic sites there's an US-made flying-insect trap containing a chemical substance which **attracts** the insects (NIS 31.90 at Handyman).
A simpler trap is a plastic container into which some water and a piece of **bait** , meat or fish, are put. This costs NIS 41.90 at Handyman.
Shalom says that...

...14.99;
spray NIS 21.99
K-900 spray, effective for six months, odorless and
non toxic - NIS 24.99
Finally, there are the bug repellents for use on the skin. Shalom... the repellent on exposed skin and wearing light colored clothes. Mosquitoes are said to be **attracted** to dark fabrics.
Bug repellents need Health Ministry approval. Pharmacologist Amira Ovadia, from the Health...

22/3,K/9 (Item 7 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

04569824 (USE FORMAT 7 OR 9 FOR FULLTEXT)
No Mosquitoes. No Pesticides. No Problem
PR NEWSWIRE
March 09, 1999
JOURNAL CODE: WPRW LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 389

(USE FORMAT 7 OR 9 FOR FULLTEXT)

Info on diseases carried by biting **insects** at www.mosquitomagnet.com
EAST GREENWICH, R.I., March 9 /PRNewswire/ -- Your days of swatting...
A new, **non - toxic** trap is just as **attractive** to biting insects as humans are. Called The Mosquito Magnet(TM), the patent-pending trap...

...com, web site of American Biophysics Corporation.
Entomologists have long known that biting insects are **attracted** to people by their exhaled carbon dioxide (CO2), so scientists at American Biophysics Corporation designed the trap to emit a CO2 plume. This **lures** the insects to the trap where they are vacuumed into a net to dehydrate and ...

...machine can be parked in the backyard or any other outdoor location.
"Mosquito Magnet(TM) **attracts** only biting insects, not beneficial ones, making it ideal for homes or restaurants or other...

22/3,K/10 (Item 8 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
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03069954
Mozzie zap trap's a winner
Rosemary Odgers
ABIX - AUSTRALASIAN BUSINESS INTELLIGENCE (COURIER-MAIL) , p69
October 10, 1998
JOURNAL CODE: WTCM LANGUAGE: English RECORD TYPE: ABSTRACT
WORD COUNT: 92

Abstracted from: The Courier-Mail
Mozziefree is an **environmentally friendly** device which **attracts** and kills **insects** like mosquitoes. Inventor, Bill Rose, uses **carbon dioxide** gas to **attract** the **insects** which are subsequently despatched to a chamber of **non toxic** liquid where they die. The Queensland company marketing the product, Mozziefree International, turned over $A1m...

22/3,K/11 (Item 9 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
(c) 2002 The Dialog Corp. All rts. reserv.

01417097 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Environment Wins in Technology Forecast
BUSINESS WIRE
April 20, 1998 3:17
JOURNAL CODE: WBWE LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 1000

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... impacts on the environment. Growing crops will require less pesticide due to greater resistance to **pests** . Other crops will be engineered to use their nutrients efficiently, requiring less fertilizer or water...

... with several new features -- such as soybeans that taste better, use less fertilizer and resist **pests** -- will be available.
... which currently can result in undesired reactions with chlorine. Sponge-like grains of sand will **attract** and hold nitrates and heavy metals to further protect drinking water in large and small...

...quality products with fewer environmental impacts.
Bioprocessing grows more products -- Microorganisms and plants will "grow" **environmentally friendly** chemical and biological products such as drugs, proteins and enzymes for many uses. Producing chemical...

... the range of temperatures and conditions used in manufacturing biotech products, creating opportunity for new, **environmentally friendly** bioprocesses while saving time and energy.
Real-time environmental sensors -- These innovative sensors will be...

...biological terrorism.
Enviromanufacturing and recycling -- In 10 years, "green" companies will create products that are **environmentally friendly** from cradle to

grave. Plastics, paper, beverage containers and inks, as well as cars and ...

22/3,K/12 (Item 1 from file: 635)
DIALOG(R)File 635:Business Dateline(R)

0154617 90-37756
Germ of Idea: Waste-Eating Bugs
Hall, Dee J.; Sidener, Jonathan
The Arizona Republic (Phoenix, AZ, US), V101 N73 sA p6
PUBL DATE: 900730
WORD COUNT: 2,368
DATELINE: Mobile, AZ, US

Germ of Idea: Waste-Eating Bugs

TEXT:

...November.

The planned facility near Mobile, which would include three incinerators and a landfill, has **attracted** about 4,000 people, mainly opponents, to public hearings in June.

"The process costs considerably...

...pushing Arizona's initiative?
"Nobody's studied it enough to say,
Are all the byproducts **non - toxic** ?'" Witt said. "What you can say almost without exception, is that it's less toxic...

28/3,K/1 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

06839969 Supplier Number: 57889940 (USE FORMAT 7 FOR FULLTEXT)
Launch of a Global Leader in Agribusiness - Novartis to Focus on Healthcare: Novartis and AstraZeneca Announce Spin-Off Followed by Merger of Agribusiness Activities.
Business Wire, p1788
Dec 2, 1999
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 2408

... the combination of the largest global sales and service networks with the broadest and most **attractive** product portfolio in crop protection and a leading position in seeds. Syngenta will build on...

...would rank No. 1 in the crop protection market with leading positions in herbicides, fungicides, **insecticides** , seed treatments, and a No. 3 position in seeds. Crop Protection will contribute USD 6...

...5 billion in herbicides, USD 1.7 billion in fungicides, USD 1.2 billion in **insecticides** and USD 0.6 billion in seed treatments and others. The Crop Protection products include...the fungicides Amistar(R), Bravo(R), Ridomil Gold(R), Score(R) and Tilt(R), the **insecticides** Curacron(R), Force(R), Karate(R), and Vertimec(R), and the seed treatment products Celest...

...Maxim(R).
The launches of several new products, such as the fungicide Flint(R), the **insecticide** **Actara** (R) (which is also marketed as the seed treatment product Cruiser(R)) are currently underway...

28/3,K/2 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

21480774 (USE FORMAT 7 OR 9 FOR FULLTEXT)
STOCKWATCH Syngenta outperforms as brokers cheer solid FY results
AFX EUROPE (FOCUS)
February 28, 2002
JOURNAL CODE: WAXE LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 267

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... encouraging noises on the full launches of Callisto and Acanto and continued growth of its **Actara** **insecticide** product, dealers said.
At 9.56 am, Syngenta shares were down 0.2 at 93...
... for 51 pct growth in EPS.
Merrill Lynch also waxed lyrical on the stock's **attractions** , saying it believes the stock remains among cheapest in sector. It is advising the stock...

NAICS CODES/DESCRIPTIONS: 32532 (**Pesticide** & Other Agricultural Chemical Mfg); 52321 (Securities & Commodity Exchanges)

28/3,K/3 (Item 2 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

09908007 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Novartis and Zeneca are merging their agribusiness activities
CHEMICAL BUSINESS NEWSBASE (PHYTOMA. LA DEFENSE DES VEGETAUX) , p48
March 03, 2000
JOURNAL CODE: FPHY LANGUAGE: French RECORD TYPE: ABSTRACT
WORD COUNT: 191

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... company will be based on major sales and service networks, with the largest and most **attractive** portfolio of plant protection products and a leading position in seeds.
With an investment of...

...to exploit economies of scale.
Various new products, such as the fungicide Flint and the **insecticide Actara** (which is also sold for seed treatment under the name Cruiser), are currently being launched...

NAICS CODES/DESCRIPTIONS: 325412 (Pharmaceutical Preparation Mfg); 32532 (**Pesticide** & Other Agricultural Chemical Mfg); 11142 (Nursery & Floriculture Production)

28/3,K/4 (Item 3 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

08510794 (USE FORMAT 7 OR 9 FOR FULLTEXT)
AstraZeneca PLC - Merger of Businesses - Part 2
REGULATORY NEWS SERVICE
December 02, 1999
JOURNAL CODE: WRNS LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 5151

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... the combination of the largest global sales and service networks with the broadest and most **attractive** product portfolio in crop protection and a leading position in seeds. Syngenta will build on...

... rank No. 1 in the crop protection market with leading positions in herbicides, fungicides and **insecticides** , a No. 2 position in seed treatments, and a No. 3 position in seeds. Crop...

... 5 billion in herbicides, USD 1.7 billion in fungicides, USD 1.2 billion in **insecticides** and USD 0.6 billion in seed treatments and others. The crop protection products include...
... the fungicides Amistar(r), Bravo(r), Ridomil Gold(r), Score(r) and Tilt(r), the **insecticides** Curacron(r), Force(r), Karate(r), and Vertimec(r), and the seed treatment products Celest...

...Maxim(r).
The launches of several new products, such as the fungicide Flint(r), the **insecticide Actara** (r) (which is also marketed as the seed treatment product Cruiser(r)) are currently underway...USD mm)
Herbicides 1,544 1,971 3,515
Fungicides 651 1,053 1,704
Insecticides 504 650 1,154
Seed Treatments, Other 91 478 569
Seeds -* 1,005 1,005...

28/3,K/5 (Item 1 from file: 570)
DIALOG(R)File 570:Gale Group MARS(R)

02203673 Supplier Number: 82740177 (USE FORMAT 7 FOR FULLTEXT)
Companies.(services for agricultural industy)(Brief Article)
Agri Marketing, v39, n11, p5(16)
Dec, 2001
ISSN: 0002-1180
Language: English Record Type: Fulltext
Article Type: Brief Article
Document Type: Magazine/Journal; Professional Trade
Word Count: 3947

... Solutions: Jim DeLong
VP, R&D: Harry Strang
Mkt Research Mgr: David Crank
Comms Mgr **Insecticides** & Fungicides: Susan York
Comms Mgr Herbicides: Stephanie Gable
PR Mgr: Greg Coffey
Dir Prod: Don...

...Pat Payne
Products: Fungicides -- Bayleton, Elite, Folicur, contact Clyde Wilson; Flint, Stratego, contact Rick Kraus; **Insecticides** -- Admire, Provado, contact Dan Meek; Aztec, Nemacur, contact Jon Mixson; Baythroid, Di-Syston, Guthion, Leverage...Relations: Ann Gualtieri
Dir R&D: Phyllis Allen
HR Mgr: Dom Malvaeux
Products: Herbicides, fungicides, **insecticides** , miticides, nematicides

DUPONT SPECIALTY GRAINS *
7100 N.W. 62nd Ave, PO Box 2, Johnston, IA...Lamie
Global Business Dir Coppers: Gary Saxton
Global Business Dir, Fungicides: Owen Towne
Business Dir **Insecticides** and PGRs: Joe Mares
Global Business Dir Herbicides: Ross Fellowes
Products: Agricultural coppers -- Basicop, Kocide...

...DF, Lorox DF, plant growth regulators -- CottonQuik, Early Harvest PGR, TST, Mepex, Super Boll, Freefall; **insecticides** -- Declare, Vendex, Atrapa
Ad and PR agency: Maria Mirsky Associates

GROWMARK, INC.
1701 Towanda Ave...

...Mktg Mgr: Glen Karaffa
Mktg Mgr: Jeffrey Kjellander
HR Mgr: Timna Lutz
Products: Seed treatments -- **insecticides** and fungicides; stored grain products; seed treatment equipment; automatic sampling equipment
Ad agency: Gustafson Communications...water soluble products, contact John Wolf or Charlie Cobb; disinfectants and sanitizers, contact Myron Hillman; **insecticides** -- RTU, concentrates, aerosols, dust and **bait** products, cattle dust bags, contact Fred Schneider; rodenticides, contact Ed Eades;

commercial and on-farm...DF, Exceed, Flexstar, Fusilade DX, Fusion, NorthStar, Peak, Rave, Reflex, Spirit, Tough 5EC, Turbo, Typhoon; **insecticides** -- **Actara** , Agri-Mek, Ambush, Armor, Centric, Clinch, Curacron 8E, Diazinon, Force, Fulfill, Karate with Zeon Technology...Resource, Stellar, Valor, Envoy, contact Sandi Jacobson; Volck oil; Sumagic plant growth regulator, miticide -- Tame **insecticide** , Volck oil, contact Steve Slaveck; **insecticides** -- Monitor, Orthene, Payload; insect growth regulators -- Distance, Knack, Esteem; Distance fire ant **bait** , contact Brent Solomon
Ad and PR agency: Archer/Malmo

VALMONT IRRIGATION
Hwy 275, Box 358...

33/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

03305437
Gas chamber for mosquitoes
(Sri Shakti Alternative Energy Ltd launches Mosquito Magnet', mosquito trap developed by American Biophysics)
Business Line, p 15
December 05, 2001
DOCUMENT TYPE: Journal ISSN: 0971-7528 (India)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 855

TEXT:
M. Somasekhar A NEW, innovative gadget that promises to **lure** the mosquito, especially the deadly female of the species, into a trap and rid people...

...Mosquito Magnet is that it mimics human breath in the form of a warm, moist **carbon - dioxide** plume produced by using an LPG gas cylinder to **attract** the blood-sucking female mosquitoes, explained Mr Satya Kumar, Managing Director, Sri Shakti Alternative Energy...

...the females depend on these receptors. One of the receptors contains neurons that detect the **carbon - dioxide** let out during exhalation and propel the mosquitoes towards the human being. Once the mosquito...

...The power of the device extends to a one-acre area, within which it can **lure** the blood-sucking mosquito. All that it needs is an LPG cylinder to let out the **carbon - dioxide** . Sri Shakti has provided this support to the gadget. The device has been developed by...

...black-flies, sand-flies and other insects that need blood for survival. Most of these **insects** are **attracted** to sources of **carbon - dioxide** . The gadget has been field-tested by scientists of the Indian Institute of Chemical Technology...

33/3,K/2 (Item 2 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

03217090 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Easing Summer's Sting
(American Biophysics' Mosquito Magnet in demand)
LP Gas, v 61, n 8, p 26+
August 2001
DOCUMENT TYPE: Journal ISSN: 0024-7103 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 1021

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:
...catalytically produce a mix of carbon dioxide and water vapor. This plume of carbon dioxide **attracts** mosquitoes, sandflies (no-see-ums), black flies and other bloodsucking insects into an attached bag...

...offering assembly and set-up services, along with providing replacement nets and an added insect **attractant** known as octenol, according to Dunne.

Inventor Brace Wigton conceived the Mosquito Magnet during a...

...was tormented by the insects. He began research that led to the discovery that emitted **carbon dioxide lures** unsuspecting **insects** into thinking they've encountered mammal blood. Instead, they are sucked into a high-tech...

...similar to that of human breath--a mixture then blown out by a fan to **attract** female mosquitoes. (Males do not bite).

As several generations of egg-laying females are eliminated...

...threatened by mosquitoes and no-see-ums. This technology is ideal because it is completely **environmentally friendly** and does not use

33/3,K/3 (Item 3 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

03087216
Mosquitoes make beeline to their demise
(American Biophysics has introduced Mosquito Magnet Pro, which entices insects **with** carbon dioxide **stream and then dehydrates them; the unit will get rid of bugs in a one-acre area)**
Machine Design, v 73, n 5, p na
March 01, 2001
DOCUMENT TYPE: Journal ISSN: 0024-9114 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 150

(American Biophysics has introduced Mosquito Magnet Pro, which entices insects **with** carbon dioxide **stream and then dehydrates them; the unit will get rid of bugs in a one...**
)

TEXT:
...and Koucky, Sherri

The Mosquito Magnet Pro from American Biophysics Corp., East Greenwich, R.I., **attracts** mosquitoes like bees to honey, pardon the analogy. The unit **entices** and kills **insects** by emanating a warm, moist, **carbon dioxide** plume, simulating the breath of a mammal. As the unwitting insects approach, they get sucked...

...Thermoformer Universal Plastics selected Centrex and Lustran resins for the housing because the plastics are **attractive** and easily machinable. This shrinks manufacturing cycle times and minimizes finishing work.
...

33/3,K/4 (Item 4 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

01875859 (USE FORMAT 7 OR 9 FOR FULLTEXT)
TECHNOLOGY: Bloodsuckers lured to a shocking end: Bruce Dorminey reports on an innovative electronic machine to kill mosquitoes:
(Alvin Wilbanks, who has founded Environmental Products & Research, has received a patent on his new Mosquito Killing System)
Financial Times London Edition, p 12
July 08, 1997
DOCUMENT TYPE: Business Newspaper ISSN: 0307-1766 (United Kingdom)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 537

(USE FORMAT 7 OR 9 FOR FULLTEXT)

ABSTRACT:
...his new Mosquito Killing System (MKS). The device is 4ft high by 2ft wide. It **attracts** mosquitoes by relying on the insect's natural ability to sense heat and breathing in finding its prey. A heat source provides an infra-red heat image which **attracts** the **bugs** over an acre, while gentle air currents simulate the **carbon dioxide** its prey emits during respiration, an artificial mixture Wilbanks compares to cows' breath. Once the...
...Wilbanks cautions that the invention is no cure-all and only works over time. MKS **attracts** only blood-seeking mosquitoes. And with a photoelectric cell to switch the machine on at...

TEXT:
...device, on which a patent has been granted, is 4ft high by 2ft wide. It **attracts** mosquitoes by relying on the insect's natural ability to sense heat and breathing in finding its prey. A heat source provides an infra-red heat image which **attracts** the **bugs** over an acre, while gentle air currents simulate the **carbon dioxide** its prey emits during respiration, an artificial mixture Wilbanks compares to cows' breath.

Once the...

...and only works over time.

Unlike regular bug zappers that use ultra-violet light to **attract** all sorts of insects, many of which are beneficial, MKS **attracts** only blood-seeking mosquitoes. And with a photoelectric cell to switch the machine on at...

33/3,K/5 (Item 1 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)

02131715 69335667
Mosquitoes make beeline to their demise
Higgins, Amy; Koucky, Sherri
Machine Design v73n5 PP: 61 Mar 1, 2001
ISSN: 0024-9114 JRNL CODE: MDS
WORD COUNT: 149

ABSTRACT: The Mosquito Magnet Pro from American Biophysics Corp. **attracts** mosquitoes like bees to honey. The unit **entices** and kills **insects** by emanating a warm, moist, **carbon - dioxide** plume, simulating the breath of a mammal. As the insects approach, they get sucked into...
TEXT: The Mosquito Magnet Pro from American Biophysics Corp., East Greenwich, R.I., **attracts** mosquitoes like bees to honey, pardon the analogy. The unit **entices** and kills insects by emanating a warm, moist, carbondioxide plume, simulating the breath of a...

... Thermoformer Universal Plastics selected Centrex and Lustran resins for the housing because the plastics are **attractive** and easily machinable. This shrinks manufacturing cycle times and minimizes finishing work.

33/3,K/6 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07960164 Supplier Number: 66498751 (USE FORMAT 7 FOR FULLTEXT)

Pest Control Products & Other Related Merchandise.
Do-It-Yourself Retailing, v179, n4, p108
Oct, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 1899

... to see or touch a trapped mouse before ills set free outdoors. These traps use **bait** to **lure** the mouse in, a trap door to catch the mouse and a release to let...

...the dying mouse crawls off somewhere in the house to die and decompose.
* Baited traps **lure** rodents into a snapping mechanism that traps them. Wooden traps collect stain and odors as...

...work the same way as baited traps but with plastic "swiss cheese" scented pedals to **lure** the rodent into the trap.
* Glue traps are pre-baited and disposable. These traps also **attract** insects and work when the rodent's feet get stuck to the glue. Once the...free roach traps remove roach dust that can cause asthma and use a natural roach **attractant** to **lure** roaches into the trap, which has multiple entry points.
* Pheromone **Lures** stimulate the insects' scented-hormones or pheromones to **lure** the insects into a sticky trap.
* UV light lamps use harmless type A ultraviolet light and a fan. The light **attracts** the insects that are then sucked by means of a fan into a drawer, where...

...house.
Outdoor Animal & Insect Repellants HIGH-TECH ADVANCEMENTS
* Propane Gas Fueled Mosquito Trap. Mosquitoes are **attracted** to humans because we exhale carbon dioxide, which has been scientifically proven to be the...

...insects use to navigate to people.
A new mosquito-killing product on the market will **attract** mosquitoes by mimicking a person's breath by catalytically manufacturing its own **carbon dioxide** from a propane gas tank. By mixing the proper amount of **carbon dioxide** , water vapor and humidity, the trap then emits a plume of **carbon dioxide** to **attract** the biting **insects** . The mosquitoes are eliminated by being drawn away from human sources of **carbon dioxide** and into the trap, where they are vacuumed into a net, dehydrate and die. Since...

33/3,K/7 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07635511 Supplier Number: 63691742 (USE FORMAT 7 FOR FULLTEXT)
Pest Control Products.
Pest Control, v68, n7, p65
July, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 1846

... new resource to eliminate out-of-control cockroach infestations with confidence. PreEmpt Professional Cockroach Gel **Bait** from Bayer Corp., Kansas City, Mo., takes advantage of the same active ingredient as Bayer...

...quickly, it continues to work for months. Specially formulated for

lasting performance, cockroaches find the **bait** palatable long after other gels have hardened. The advanced formulation helps Pre-Empt to resist...

...per box and eight boxes per case. The syringes fit into most commonly used professional **bait** guns.

The trait pest management customers may appreciate most of all is that the unique...
...is targeted at pests, and it effectively controls all major cockroach species.

Spotlight On: Ant **Bait**

Drax Liquidator Is Designed Around PMP Needs

WATERBURY COMPANIES, INC. presents a professional-size version of its Drax Liquidator ant **bait** system. The system features a seven-ounce refillable receptacle, as well as a one-gallon container of boric acid ant **bait** . Each receptacle is child-resistant and equipped with a ground-anchoring spike. Liquidator Pro is...

...designed around the needs of the pest management professional (PMP). The one-gallon refill and **bait** receptacle are designed to work in tandem to ensure a quick, clean fill. Studies have...

...that continuous exposure to one percent liquid boric acid, the key ingredient in Drax Liquidator **bait** , produces 100 percent mortality of ants after several days.

For more information, call 203/597...

...quick knockdown against a broad spectrum of pests, strong flushing action and will not contaminate **bait** placements. The product incorporates the same active ingredient, hexa-hydroxyl, found in all EcoPCO products...
...They can even be used in commercial accounts so that the customer better understands an **integrated pest management** (IPM) strategy.

For more information, call 800/992-6339.

Circle #3

SOUTHERN CHEM-TECH, lINC...relies upon the mosquito's natural ability to locate its prey through heat sensing and **carbon dioxide** detection. It mimics the body temperature of humans, pets and other animals and, thus, **attracts** the **insects** into the "killing zone," where they are quickly electrocuted. Made of durable aluminum, the unit...

...one acre free from mosquitoes, gnats, no-see-ums and black flies, and an additional **carbon dioxide** ((CO.sub.2)) attachment is available for larger populations, as heat and (CO.sub.2) combined create a powerful **attractant** .

For more information, call 732/469-5999.

Circle #5

J.T. EATON presents Dr. Moss' liquid **bait** system, which offers an easy-to-use boric acid-based liquid **bait** that contains caffeine. The product, which was developed, tested and patented by Dr. James Moss...

...acid product works very well. We believe that the ants are able to carry the **bait** back to the colony, and we're able to eliminate the colonies in the tree...

...3421.

Circle #6

B&G EQUIPMENT now offers a lower-priced IPM Pro vacuum for **integrated pest management** (IPM) applications. The vacuum offers the same level of filtration as other vacuums, but at...

33/3,K/8 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07551677 Supplier Number: 63184681 (USE FORMAT 7 FOR FULLTEXT)
Termatrol Integrates Methods and Ideas.
Pest Control, v68, n6, p88
June, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 744

... of work for them," he notes. "So, many of my PMP customers are offering Termatrol **bait** systems at renewal time, saying, `Look, I can come out here on a quarterly basis...

...Ants and Termites
Hovious points out that because ants attack termites, having ants infest termite **bait** stations is bad news. That's where Termatrol's Eliminator **bait** stations come into play.
The bottom, tubular portion that goes into the ground, is the...

...Protector station. The large attachment that goes on top, the GPX 2000, is for ant **bait** .
"Ants are constantly, randomly foraging for food. So, when they come upon it, they're...

...up to the station. Plus, adds Hovious, when the foam starts to degrade, it emits **carbon dioxide** --which is **attractive** to **termites** .
Hovious sells to large and medium firms, but he is pleased that his product line...

33/3,K/9 (Item 4 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

04433732 Supplier Number: 46504392
Compound pheromone agent supresses proliferation of apple pests.
New Technology Japan, p37
July, 1996
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Trade

ABSTRACT:
...threat as other agents, since it can easily be decomposed and dissolved into water and **carbon dioxide** in the soil. The agent **lures** its prey **insects** because it contains a synthetic organic compound that confuses insects with the similar pheromone secreted...

33/3,K/10 (Item 5 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

04225680 Supplier Number: 46183187
A High-Tech Mosquito Barrier
Agricultural Research, p12
March, 1996
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Academic

ABSTRACT:
Mosquito traps that use **carbon dioxide** and octenol as **attractants** are successfully being used on Key Island in the Everglades park in south Florida. **Carbon dioxide** has long been known as an **attractant** for

biting **insects** , while Octenol, a gas given off by ruminant animals, is also known in Africa to **attract** the tse tse fly. Using these two gases as **attractants** , together with a synthetic pyrethroid insecticide, the Key Island traps have been successul in catching...

33/3,K/11 (Item 1 from file: 160)
DIALOG(R)File 160:Gale Group PROMT(R)

00709143
Microbial enhanced oil recovery research is being financed by US and UK govt energy depts.
Economist December 12, 1981 p. 01,1021

... make oil flow more freely. Possible chemicals and gases include acetic acid, alcohols or acetones, **carbon dioxide** , hydrogen and methane. One aim of research is to establish what biological activity occurs naturally...

... which oil flows. One difficulty is that oil reservoirs lack oxygen that many of the **bugs** with **attractive** features require for their existence. Research teams at Oklahoma State U, the U of Oklahoma...

33/3,K/12 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

18232459 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Man still hunts for a mosquito repellent
HINDUSTAN TIMES
August 07, 2001
JOURNAL CODE: WHTS LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 848

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... to children, women to men and pregnant women most. And they find ovulating women more **attractive** than those menstruating.
Frequent bathing in cool water to lower the temperature of your body ...

... and wash away the build-up of lactic acid on your skin should reduce your **attractiveness** to mosquitoes. Colours of clothing are not very important to mosquitoes because the other **attractions** are so much stronger.
Some people insist that taking vitamin B1 (thiamin) reduces their allure...
...authority on mosquitoes.
Among devices sold to control mosquitoes in yards, the bug zapper, which **attracts** insects with black light, is probably the most popular (four million sold in four years...

... mosquito behaviour is the newly marketed Mosquito Magnet, which emits plumes of carbon dioxide to **attract** biting **insects** , then quietly vacuums them into a net and dries them up. It operates on a...

33/3,K/13 (Item 2 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

17248144 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Mosquito Magnet to reach the Nordic countries
NORDIC BUSINESS REPORT
June 15, 2001
JOURNAL CODE: WNOR LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 382

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... first agent outside the USA for a novel US invention that uses carbon dioxide to **attract** biting **insects** and draw them in.
The Mosquito Magnet uses propane to make carbon dioxide, which together with moisture mimics a large mammal and **attracts** the **insects** , without creating any environmentally dangerous substances.
... be fed to pet fish.
The company which developed the mosquito trap originally made insect-**attracting** traps for universities doing insect research, but the inventor, Bruce Wigton, reportedly got the idea...

...that draws biting insects to their 'victims', but it is only biting ones that are **attracted** to it and it will not harm the useful insects that pollinate plants.
At present...

33/3,K/14 (Item 3 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

16769669 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Providence Journal, R.I., Peter Phipps Column
Peter Phipps
KRTBN KNIGHT-RIDDER TRIBUNE BUSINESS NEWS (PROVIDENCE JOURNAL-BULLETIN - RHODE ISLAND)
May 20, 2001
JOURNAL CODE: KPJN LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 708

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... and some of the country's leading entomologists, Wigton confirmed that blood-seeking insects are **attracted** by the **carbon dioxide** (**CO2**) we exhale. Wigton discovered one more thing: mosquitoes can turn only one way, up.
With...

33/3,K/15 (Item 4 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

12823825 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Tech Talk: Controlling mosquitoes
GLEANER
September 14, 2000
JOURNAL CODE: WGLE LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 488

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... bloodsuckers. It incorporates a 20-pound bottle of propane that catalytically produces carbon dioxide to **lure** the **pests** away from you. The mosquitoes enter the device, get trapped, and die. The device, which...

33/3,K/16 (Item 5 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

05184581 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Bugs B Wear Sterling Silver Diffuser Jewelry Repels Bugs, Protects Skin, Naturally
PR NEWSWIRE
May 04, 1999
JOURNAL CODE: WPRW LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 614

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... outdoor activity -- insects. Flies, mosquitoes, gnats and other bugs ... all are in full season and **attracted** to humans' body warmth, moisture, sweat ... even the carbon dioxide in our breath.
Now there...
... insects buzz around the head and bite the face and shoulders is that they are **attracted** to the carbon dioxide emitted from breathing. Additionally, sports, gardening and other outdoor activities can result in body warmth, odor and perspiration, all of which **attract bugs** . **Bugs** B Wear is ideal for use during any outdoor activity as it diffuses an unobtrusive...

33/3,K/17 (Item 6 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

03633050 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Weatherwatch
PAUL SIMONS
GUARDIAN
December 03, 1998
JOURNAL CODE: FGDN LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 249

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... a massive Dollars 750 million damage a year termite problem in the United States. The **termites** are **attracted** to **carbon dioxide** , so much so that slowly seeping **carbon dioxide** into the ground **lures termites** away from homes. In nature, **termites** are probably **attracted** to the **carbon dioxide** released from rotting wood, the termites' favourite food. **Carbon dioxide** is also high in termite colonies, suggesting termites could also use the gas for finding...

38/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)
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01864402 (USE FORMAT 7 OR 9 FOR FULLTEXT)
He's got swarms of customers
(Eco Tech's Bug-Ban insect repellent wristband is expected to raise first-year sales through 4/97 of over $7 mil to $15 mil in 1997)
Crain's Chicago Business, v 20, n 24, p 4+
June 16, 1997
DOCUMENT TYPE: Journal ISSN: 0149-6956 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 806

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:
...Whitman Corp.'s Pepsi-Cola General Bottlers' subsidiary in Rolling Meadows and a self-described **mosquito magnet** , grabbed two of the bracelets at a golf tournament last year.

"People were leaving the...

38/3,K/2 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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05397598 Supplier Number: 50360241 (USE FORMAT 7 FOR FULLTEXT)
He's got swarms of customers
Bell, Bonnie
Crain's Chicago Business, p4
June 16, 1997
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Tabloid; Trade
Word Count: 830

... Whitman Corp.'s Pepsi-Cola General Bottlers' subsidiary in Rolling Meadows and a self-described **mosquito magnet** , grabbed two of the bracelets at a golf tournament last year.
'People were leaving the...

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File   5:Biosis Previews(R) 1969-2002/Jun W1
         (c) 2002 BIOSIS
File   6:NTIS 1964-2002/Jun W3
         (c) 2002 NTIS, Intl Cpyrght All Rights Res
File  10:AGRICOLA 70-2002/May
         (c) format only 2002 The Dialog Corporation
File  28:Oceanic Abst. 1964-2002/May
         (c) 2002 Cambridge Scientific Abstracts
File  34:SciSearch(R) Cited Ref Sci 1990-2002/Jun W2
         (c) 2002 Inst for Sci Info
File  44:Aquatic Sci&Fish Abs 1978-2002/May
         (c) 2002 FAO (for ASFA Adv Brd)
File  50:CAB Abstracts 1972-2002/Apr
         (c) 2002 CAB International
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File  98:General Sci Abs/Full-Text 1984-2002/Apr
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         (c) 1998 Inst for Sci Info

Set     Items   Description
S1    2052966   INSECTS OR TERMITE? OR PESTS OR BUGS OR PARASITE?
S2     450409   CARBON()DIOXIDE OR CO2
S3       8404   CORNROOT? OR CORN()ROOT? OR ROOTWORM? OR ROOT()WORM?
S4        495   THIAMETHOXAM OR THIANICOTINYL? OR NEONICOTIN?
S5       1902   CORN()COB()GRITS OR (SPENT OR DISTILLER?)(2N)GRAIN OR CRAC-
             KED()CORN? ? OR MALTED()(BARLEY OR GRAIN)
S6     741047   PESTICIDE? OR INSECTICIDE?
S7     299624   ATTRACT? OR LURE OR LURES OR LURING OR SNARE OR SNARES OR -
            SNARING OR BAIT OR ENTICE?
S8     764854   SOWING OR PLANTING OR CULTIVAT?
S9      26031   INTEGRATED()PEST()MANAGEMENT
S10     28373   ENVIRONMENT?(5N)FRIEND? OR NON()TOXIC?
S11      7711   S1 AND S2
S12        57   S11 AND S3
S13        40   S12 AND (S6 OR S7 OR S8 OR S9 OR S10)
S14        14   RD (unique items)
S15         0   S11 AND S4
S16      1737   S11 AND (S5 OR S6 OR S7)
S17       703   S16 AND S6
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S18        52   S17 AND S8
S19        51   RD (unique items)
S20       347   S17/TI
S21         8   S20 AND S19
S22         8   S21 NOT S14
S23       159   S2 AND S3
S24        54   S23 AND S7
S25        97   S23/TI
S26        46   S24 AND S25
S27         1   S26 AND (S8 OR S9 OR S10)
S28         1   RD (unique items)
S29         1   S28 NOT (S14 OR S21)
S30         0   S26 AND S4
S31        31   S26 AND S1
S32        10   RD (unique items)
S33         0   S32 NOT (S14 OR S21 OR S28)
S34      3599   S7(2N)S1
S35        22   S34(10N)S2
S36        17   RD (unique items)
S37        16   S36 NOT (S14 OR S21 OR S28)
S38         0   S34 AND S4
S39       271   S1 AND S4
S40         0   S39 AND (S3 OR S5)
S41        13   S39 AND (S6 AND S8)
S42         4   RD (unique items)
S43    460570   42 NOT (S14 OR S21 OR S28 OR S36)
S44         4   S42 NOT (S14 OR S21 OR S28 OR S36)
S45       277   AU='BJOSTAD L' OR AU='BJOSTAD L B' OR AU='BJOSTAD LB' OR A-
                U='BJOSTAD LOUIS B' OR AU='BJOSTAD, L B' OR AU='BJOSTAD, L. B'
                OR AU='BJOSTAD, L. B.' OR AU='BJOSTAD, L.B.' OR AU='BJOSTAD,
                LOU' OR AU='BJOSTAD, LOUIS B' OR E15
S46        39   AU='BERNKLAU E' OR AU='BERNKLAU E J' OR AU='BERNKLAU EJ' OR
                AU='BERNKLAU ELISA J' OR AU='BERNKLAU, E. J' OR AU='BERNKLAU,
                E. J.' OR AU='BERNKLAU, E.J.'
S47       319   AU='FROMM E' OR AU='FROMM ERICH'
S48        50   AU='FROMM, E' OR AU='FROMM, E.' OR AU='FROMM, E. A.' OR AU-
                ='FROMM, ERICH'
S49        36   (S45 OR S46 OR S47 OR S48) AND S1 AND S2
S50        35   S49 AND (S3 OR S5)
S51        33   S50 AND S7
S52         0   S51 AND (S8 OR S9 OR S10)
S53        10   RD S51 (unique items)
S54         0   S53 NOT (S14 OR S21 OR S28 OR S36 OR S42)
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14/3,AB/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

11820797 BIOSIS NO.: 199900066906
Reinvestigation of host location by western corn rootworm **larvae (Coleoptera: Chrysomelidae): CO2 is the only volatile** attractant .
AUTHOR: Bernklau E J; Bjostad L B
AUTHOR ADDRESS: Dep. Bioagric. Sci. Pest Management, Colo. State Univ., Fort Collins, CO 80523**USA
JOURNAL: Journal of Economic Entomology 91 (6):p1331-1340 Dec., 1998
ISSN: 0022-0493
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: In strong contrast to earlier published results, we now conclude that the **attraction** of western **corn rootworm** , Diabrotica virgifera virgifera LeConte, larvae to **corn roots** is caused by **CO2** alone, and that no other volatile chemical cues are involved in **attracting** the larvae. Choice test behavioral bioassays were conducted in the laboratory, with volatile corn compounds on one side of the bioassay apparatus and with different concentrations of **CO2** on the other side (mass spectrometry was used to measure **CO2** concentrations on both sides of the apparatus). Larvae were strongly **attracted** to volatile compounds from corn when ambient air was present on the other side of the bioassay. However, larvae chose equally between the 2 sides of the bioassay when volatile compounds from corn were present on one side and an equivalent concentration of **CO2** was present on the other side. When given a choice between corn volatiles and a higher concentration of **CO2** , the larvae chose the **CO2** side significantly more often. In an experiment conducted both with diapausing and nondiapausing strains, the headspace from germinating corn seeds was collected and continuously injected into one side of the bioassay apparatus, and a defined concentration of **CO2** was continuously injected into the other side. We tested the possibility that compounds of limited volatility may be involved in larval **attraction** by preparing glass beads coated directly with volatiles produced by germinating corn seeds, and also by testing soil that was removed from **corn roots** . All these experiments indicated that compounds other than **CO2** were not involved in larval **attraction** . In other experiments, the soil atmosphere surrounding the roots of growing corn plants was not as **attractive** as an equivalent concentration of **CO2** alone, and the headspace from feeding-damaged **corn roots** was not as **attractive** as an equivalent concentration of **CO2** alone, indicating that weak repellents were present in these treatments together with the strong **attractant CO2** . Tests with solvent extracts and cryogenic extracts of germinating corn seeds in conjunction with **CO2** also indicated the presence of weak repellents in corn for the larvae.

1998

14/3,AB/2 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

11469777 BIOSIS NO.: 199800251109
Behavioral responses of first-instar western corn rootworm **(Coleoptera: Chrysomelidae) to** carbon dioxide **in a glass bead bioassay.**
AUTHOR: Bernklau E J; Bjostad L B
AUTHOR ADDRESS: Dep. Bioagric. Sci. Pest Manage., Colo. State Univ., Fort Collins, CO 80523**USA
JOURNAL: Journal of Economic Entomology 91 (2):p444-456 April, 1998

ISSN: 0022-0493
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: A behavioral bioassay was developed to test responses of newly hatched (neonate) larvae of western **corn rootworm** Diabrotica virgifera virgifera LeConte to volatile compounds from corn plants, a major host for this insect. A glass Y-tube filled with glass beads was used to allow choice tests in a vertical direction and to reproduce the thigmotactic cues available to larvae in their natural soil environment. A syringe pump was used to provide slow, consistent delivery of candidate compounds to the 2 sides of the apparatus. Significantly more larvae were **attracted** to the side containing a germinating corn seed than to the side containing ambient air. In addition, significantly more larvae were **attracted** to the side containing cut **corn roots** than to the side containing an ambient air control. **Carbon dioxide** (**CO2**) from **corn roots** previously has been implicated as an **attractant** for the larvae, and dose-response curves for larval **attraction** to **CO2** were obtained using different sources (different dilutions of carbonated water, the headspace over a carbonated water dilution, and different concentrations of **CO2** in air). The **CO2** concentrations for all sources were measured by mass spectrometry with selected ion monitoring at m/e 44. Neonate larvae were significantly **attracted** to concentrations of **CO2** as low as 1.125 +- 0.04 mmol/mol (concentration of **CO2** in ambient air on the control side was 0.99 +- 0.02 mmol/ mol). Larvae were optimally **attracted** to 2.51-4.20 mmol/mol **CO2** , but they were **attracted** to concentrations as high as 100 mmol/mol. Larvae were not **attracted** to 300 or 900 mmol/mol **CO2** , and they exhibited toxic symptoms at these high concentrations.The concentration of **CO2** in soil near growing **corn roots** was 4.36 +- 0.31 mmol/mol, which was consistent with the behavioral optimum for the larvae. The concentration of **CO2** in soil that contained no corn was 1.38 +- 0.03 mmol/mol and the concentration in ambient air was 0.94 +- 0.01 mmol/mol.

1998

14/3,AB/3 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10564758 BIOSIS NO.: 199699185903
Dichloromethane attracts **diabroticite larvae in a laboratory behavioral bioassay.**
AUTHOR: Jewett D K(a); Bjostad L B
AUTHOR ADDRESS: (a)USDA-ARS, Insect Biol. Population, Management Res. Lab., P. O. Box 748, Tifton, GA 31793**USA
JOURNAL: Journal of Chemical Ecology 22 (7):p1331-1344 1996
ISSN: 0098-0331
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: A two-choice laboratory behavioral bioassay was used to demonstrate that dichloromethane elicits the dose-dependent **attraction** of second-instar western and southern **corn rootworms** . Preliminary data suggest that second-instar banded cucumber beetles are also **attracted** to dichloromethane. An eluotropic series of 10 materials, including distilled water, ethanol, methanol, acetone, ethyl dichloroacetate, dichloromethane, diethyl ether, benzene, hexadecane, and hexane, was tested for **attraction** of western **corn rootworm** larvae. Dichloromethane was the only one **attractive** at all doses tested, and

orthogonal comparisons revealed a quadratic trend (convex) for responses of larvae to increasing dose. Benzene and hexadecane also **attracted** larvae, but significantly fewer than dichloromethane, and only at three doses and one dose, respectively. Orthogonal comparisons revealed no linear or quadratic trend for responses of larvae to increasing doses of either compound. Dichloromethane is the first organic compound demonstrated to **attract** western **corn rootworm** larvae in the absence of **carbon dioxide** . **Carbon dioxide** has previously been reported to **attract** western **corn rootworm** larvae either independently or when combined with other organic compounds, and the sensitivity of our bioassay was tested by demonstrating the dose-dependent **attraction** of western **corn rootworm** larvae to carbonated water as a **carbon dioxide** source. We have also demonstrated the **attraction** of southern **corn rootworm** larvae to **carbon dioxide** and propose that **carbon dioxide** and dichloromethane behave analogously when they interact with chemoreceptor sites on larvae.

1996

14/3,AB/4 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09871689 BIOSIS NO.: 199598326607
Germinating corn extracts and 6-methoxy-2-benzoxazolinone: Western corn rootworm **(Coleoptera: Chrysomelidae) larval** attractants **evaluated with soil** insecticides .
AUTHOR: Hibbard B E(a); Peairs F B; Pilcher S D; Schroeder M E; Jewett D K; Bjostad L B
AUTHOR ADDRESS: (a)USDA-ARS, 103 Curtis Hall, Univ. Mo., Columbia, MO 65211 **USA
JOURNAL: Journal of Economic Entomology 88 (3):p716-724 1995
ISSN: 0022-0493
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: 6-Methoxy-2-benzoxazolinone (MBOA), a host-location semiochemical for western **corn rootworm** , Diabrotica virgifera virgifera LeConte, larvae, was tested as an **attractant** with the experimental **insecticide** chlorethoxyphos in laboratory and field experiments. Crude dichloromethane extracts of germinating corn seedlings were tested as an additional **attractant** for incorporation in soil **insecticides** (chlorethoxyphos and carbofuran) in laboratory experiments. Significantly more western **corn rootworm** larvae were recovered in the core portion of the bioassay apparatus (the portion where the **attractant** was located) in laboratory experiments when MBOA or a crude dichloromethane extract of germinating corn seedlings was present with **insecticide** than in the other three treatments (**attractant** alone, **insecticide** alone, and control), indicating that MBOA or a crude dicloromethane extract of germinating corn seedlings are behaviorally active to western **corn rootworm** larvae at ambient **carbon dioxide** levels. In these same experiments, significantly more larvae died in the core portion of the bioassay when **insecticide** was present with an **attractant** than when **insecticide** alone or **attractant** alone were present, or in the control, indicating that either MBOA or crude dichloromethane extract of germinating corn seedlings can be used to increase **insecticide** efficacy in laboratory bioassays. Naturally infested and artificially infested field experiments were conducted in 1991 and 1992. Most of the MBOA/chlorethoxyphos combinations did not significantly lower **corn rootworm** damage when compared to the same level of chlorethoxypros without MBOA. The only MBOA/chlorethoxyphos combination that provided

significantly reduced **corn rootworm** damage was the 1992 naturally infested field experiments in Akron, CO. Treatments with granules containing both 2.5% chlorethoxyphos and 3 mg/g MBOA had significantly less **corn rootworm** damage (lower root ratings) than treatments with 2.5% chlorethoxyphos without MBOA. Western **corn rootworm** larvae are very sensitive to MBOA levels. The single **attractant** MBOA, though promising in laboratory studies, did not consistently increase the efficacy of chlorethoxyphos under the variable conditions of field studies.

1995

14/3,AB/5 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09668485 BIOSIS NO.: 199598123403
Long-chain free fatty acids: Semiochemicals for host location by western corn rootworm larvae.
AUTHOR: Hibbard Bruce E(a); Bernklau Elisa J; Bjostad Louis B
AUTHOR ADDRESS: (a)USDA-ARS, Plant Genetics Res. Unit, Room 101 Curtis Hall, Univ. Mo., Columbia, MO 65211**USA
JOURNAL: Journal of Chemical Ecology 20 (12):p3335-3344 1994
ISSN: 0098-0331
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: A bioassay-driven sequential fractionation scheme was used to isolate fractions of a crude dichloromethane maize seedling extract behaviorally active to larvae of the western **corn rootworm**, Diabrotica virgifera virgifera LeConte. (Z,Z)-9,12-Octadecadienoic (linoleic) acid, (Z)-9-octadecenoic (oleic) acid, and octadecanoic (stearic) acid were identified from a purified fraction of maize extract that was **attractive** to western **corn rootworm** larvae in choice tests with equal levels of **carbon dioxide** on both sides of the choice. When synthetic linoleic, oleic, and stearic acids were tested together in the amounts and proportions found in the **attractive** fraction (1000, 800, and 300 ng of linoleic, oleic, and stearic acids, respectively), significantly more western **corn rootworm** larvae were found on the side with synthetic free fatty acids plus **carbon dioxide** than on the side with **carbon dioxide** alone. Results of the choice-test bioassays were not significantly different when the synthetic blend of free fatty acids was substituted for the purified maize fraction. Neither the purified extract nor the synthetic blend was behaviorally active in preliminary single-choice experiments without **carbon dioxide**. Linoleic, oleic, and stearic acids were also tested individually in the choice test bioassay with **carbon dioxide** on both sides of the choice to determine a dose-response curve. Linoleic and oleic acid each had one dose that was significantly **attractive** in conjunction with **carbon dioxide** on both sides of the choice, but stearic acid was not active in the doses tested.

1994

14/3,AB/6 (Item 6 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

08332230 BIOSIS NO.: 000094083478
6 METHOXY-2-BENZOXAZOLINONE A SEMIOCHEMICAL FOR HOST LOCATION BY WESTERN

CORN ROOTWORM **LARVAE**
AUTHOR: BJOSTAD L B; HIBBARD B E
AUTHOR ADDRESS: DEP. ENTOMOLOGY, COLORADO STATE UNIVERSITY, FORT COLLINS, COLO. 80523.
JOURNAL: J CHEM ECOL 18 (7). 1992. 931-944. 1992
FULL JOURNAL NAME: Journal of Chemical Ecology
CODEN: JCECD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A bioassay-driven sequential fractionation scheme was used to isolate all portions of a crude dichloromethane corn seedling extract behaviorally active to larvae of the western **corn rootworm**, Diabrotica virgifera virgifera LeConte. 6-Methoxy-2-benzoxazolinone (MBOA) was identified as one of the most important components of an **attractive** crude corn extract. MBOA was found on or in the intact root tissues by injecting an extract of undamaged roots onto an HPLC immediately after extraction. MBOA was demonstrated to be volatile and functions as a semiochemical in conjunction with **carbon dioxide** in host location by western **corn rootworm** larvae, which are oligophagous on the roots of maize and several other species of grasses. Because MBOA occurs almost exclusively in maize and other grasses, it offers a simple way for the larvae to distinguish possible hosts from non-hosts. MBOA has previously been reported as a chemical defense against other insect species. This is the first report in grasses of a secondary compound that is toxic or a deterrent to nonadapted insect herbivores but that is used as a semiochemical in host location by a specialist insect species.

1992

14/3,AB/7 (Item 7 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07497560 BIOSIS NO.: 000091071429
ISOLATION OF CORN SEMIOCHEMICALS ATTRACTIVE **AND REPELLENT TO WESTERN** CORN ROOTWORM **LARVAE**
AUTHOR: HIBBARD B E; BJOSTAD L B
AUTHOR ADDRESS: DEP. ENTOMOL., COLORADO STATE UNIV., FORT COLLINS, COLO. 80523.
JOURNAL: J CHEM ECOL 16 (12). 1990. 3425-3440. 1990
FULL JOURNAL NAME: Journal of Chemical Ecology
CODEN: JCECD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Dichloromethane extracts of germinating corn are significantly **attractive** to western **corn rootworm** larvae in choice tests with equal levels of **carbon dioxide** present on both sides of the choice. Two fractions that are significantly **attractive** and two fractions that are significantly repellent to larvae were isolated from these extracts of germinatng corn by gas chromatography and silica gel chromatography. In a separate set of experiments, Porapak N was used to collect headspace volatiles from germinating corn; significantly more larvae were **attracted** to aliquots of these extracts in single-choice tests without added **carbon dioxide** present than to solvent controls.

1990

14/3,AB/8 (Item 8 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07222847 BIOSIS NO.: 000090002705
HOST SEARCH BEHAVIOR OF NEONATE WESTERN CORN ROOTWORM **DIABROTICA-VIRGIFERA-VIRGIFERA**
AUTHOR: STRNAD S P; DUNN P E
AUTHOR ADDRESS: DEP. ENTOMOL., PURDUE UNIV., WEST LAFAYETTE, INDIANA 47907, USA.
JOURNAL: J INSECT PHYSIOL 36 (3). 1990. 201-206. 1990
FULL JOURNAL NAME: Journal of Insect Physiology
CODEN: JIPHA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Paths made by neonate western **corn rootworm** larvae in an arena were analysed to determine host-finding behaviour. Larvae shifted from long distance ranging behaviour to localized search behaviour after 5 min of contact with the roots of maize and wheat, but not contact with oats, giant foxtail, or soybean. This shift from ranging to localized search is initiated by contact cues, because exposure to germinating maize plant voltailes for 10 min or for 1 h did not result in a similar switch. After time, unrewarded larvae shifted back to ranging behaviour. Response to contact cues dominated over response to volatile cues because immediately after contact with maize roots, larvae were no longer **attracted** to **carbon dioxide** .

1990

14/3,AB/9 (Item 9 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

06223503 BIOSIS NO.: 000086057685
BEHAVIORAL RESPONSES OF WESTERN CORN ROOTWORM **LARVAE TO VOLATILE SEMIOCHEMICALS FROM CORN SEEDLINGS**
AUTHOR: HIBBARD B E; BJOSTAD L B
AUTHOR ADDRESS: DEP. ENTOMOL., COLORADO STATE UNIV., FORT COLLINS, COLORADO 80523.
JOURNAL: J CHEM ECOL 14 (6). 1988. 1523-1540. 1988
FULL JOURNAL NAME: Journal of Chemical Ecology
CODEN: JCECD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Corn seedling volatiles collected cryogenically are highly **attractive** to western **corn rootworm** larvae, Diabrotica virgifera virgifera LeConte (Coleoptera: Chrysomelidae), in a laboratory bioassay. **Carbon dioxide** is known as an **attractant** for western **corn rootworm** larvae, and the amount of **carbon dioxide** in the cryogenic collections was measured with an infrared gas analyzer. In a choice test between a source containing **carbon dioxide** alone and a source containing corn seedling volatiles with an equal amount of **carbon dioxide** (verified by infrared gas analysis), western **corn rootworm** larvae chose the corn volatile source significantly more often than the side with **carbon dioxide** alone. This indicates that **carbon dioxide** is only one of the volatiles from corn seedlings that is behaviorally important and that other compounds of behavioral importance are present as well.

1988

14/3,AB/10 (Item 1 from file: 10)
DIALOG(R)File 10:AGRICOLA

3342230 20371304 Holding Library: AGL
Affects of larval injury by western corn rootworm (Coleoptera: Chrysomelidae) on gas exchange parameters of field corn
Godfrey, L.D. Meinke, L.J.; Wright, R.J.
Lanham, Md. : Entomological Society of America, 1908-
Journal of economic entomology. Oct 1993. v. 86 (5) p. 1546-1556.
ISSN: 0022-0493 CODEN: JEENAI
DNAL CALL NO: 421 J822
Language: English

The effect of larval-induced root injury by western **corn rootworm** , Diabrotica virgifera virgifera LeConte, on plant physiological parameters of field corn (Zea mays L.) was examined in a 2-yr field study. Controlled infestations of 200, 500, and 1,000 eggs per 30.5 row-cm were established in an irrigated, silty clay loam soil in 1989 and in silty clay loam, loam, and sandy loam soil textures with irrigated and dryland treatments in 1990. Infestations were made 16 d after **planting** and at **planting** in 1989 and 1990, respectively. Gas exchange parameters were examined before egg hatch, during the injury period, and approximately 2 wk following the cessation of the injury. During both years, corn photosynthetic rates at full sunlight were reduced by an average of 7.9% coinciding with the initial period of larval injury; i.e., feeding by primarily first and second instars. During the periods of maximum injury and postinjury, western **corn rootworm** injury to **corn roots** resulted in either no significant effect on photosynthetic rate (1990) or in an apparent stimulatory effect (by up to 11.2%) on photosynthetic rate (1989). The photosynthesis effects were not consistently related to changes in stomatal conductance or intercellular **CO2** concentration. Plant response to root injury was similar in all three soil textures and in differing soil moisture levels (occurring during postinjury period only) in 1990; however, soil texture and soil moisture did have significant direct effects on plant physiology. Plant developmental stage at the time of injury may be an important factor in determining the plant response to injury. Peak injury occurred in the V12-V15 and V9-V11 stages of development in 1989 and 1990, respectively. The increased amount of photosynthetically active biomass (i.e., leaf tissue) may have enhanced the plants' compensatory response in 1989.

14/3,AB/11 (Item 2 from file: 10)
DIALOG(R)File 10:AGRICOLA

3239859 92074546 Holding Library: AGL
Effect of enhanced biodegradation of carbofuran on the control of striped cucumber beetle (Coleoptera: Chrysomelidae) on muskmelon
Buhler, W.G. York, A.C.; Turco, R.F.
Purdue University, West Lafayette, IN
Lanham, Md. : Entomological Society of America.
Journal of economic entomology. Oct 1992. v. 85 (5) p. 1910-1918.
ISSN: 0022-0493 CODEN: JEENAI
DNAL CALL NO: 421 J822
Language: English

Soils traditionally used for muskmelon, Cucumis melo L., production in Indiana were studied for their capacity to develop enhanced (rapid) rates of carbofuran (2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate) breakdown. The rate of carbofuran degradation in soils with a history of carbofuran treatment was compared with similar soils with no previous carbofuran treatment. Degradation estimates were based on bioassay with larval western **corn rootworms** , Diabrotica virgifera virgifera LeConte, and measurement of the release of 14C- **CO2** from 14C-carbofuran. Uptake of

carbofuran by muskmelon plants growing in enhanced (soil in which a **pesticide** is rapidly degraded by populations of microorganisms previously exposed to the **pesticide** or a structurally, related compound) and nonenhanced soils was also estimated. Both estimates of degradation showed rapid loss of carbofuran occurring in history soils as opposed to a much slower rate of degradation in nonhistory soils. Plant uptake of carbofuran, measured by bioassay with striped cucumber beetle, Acalymma vittatum (F.), and residue analysis by gas chromatography-mass spectrometry was dependent upon the concentration of the **insecticide** in soil. The control of striped cucumber beetle on plants growing in history soils was reduced compared with plants growing in nonenhanced soil.

14/3,AB/12 (Item 1 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03377530 CAB Accession Number: 971105287
Structure-activity study with haloalkane attractants **of western** corn rootworm **(Coleoptera: Chrysomelidae) larvae using a behavioral bioassay.**
Jewett, D. K.; Bjostad, L. B.
USDA-ARS Insect Biology Laboratory, P.O. Box 748, 01 Davis Rd. Tifton, GA 31793, USA.
Journal of Entomological Science vol. 32 (1): p.91-105
Publication Year: 1997
ISSN: 0749-8004 --
Language: English
Document Type: Journal article
A two-choice laboratory behavioural bioassay was used to compare the dose-dependent responses of 2nd-instar larvae of Diabrotica virgifera virgifera to a series of structurally related haloalkanes, including ones with different halogens, degree of halogen substitution, chain length, and degree of saturation. Disubstituted bromine and iodine analogues of dichloromethane (methylene chloride) **attracted** larvae at all doses tested, including 0.5, 1.0, 2.0 and 4.0 mg. Dibromomethane **attracted** significantly more larvae than methylene chloride at the lowest dose tested (0.5 mg). Analogues of methylene chloride with more chlorine substitutions **attracted** significantly fewer larvae than methylene chloride at most doses tested except for chloroform, which **attracted** significantly more larvae than methylene chloride at the lowest dose tested (0.5 mg). Although larvae were repelled by the two highest doses of 1,1-dichlorobutane tested (2.0 and 4.0 mg), orthogonal contrasts revealed no trend in responses of larvae to increasing doses of it or any of the other chain length analogues tested, 1,1-dichloroethene is an unsaturated analogue of 1,1-dichloroethane, and orthogonal contrasts revealed a positive linear trend for responses of larvae to increasing doses of it.
3 pp. of ref.

14/3,AB/13 (Item 1 from file: 76)
DIALOG(R)File 76:Life Sciences Collection

02365853 4469650
Reinvestigation of Host Location by Western Corn Rootworm **Larvae (Coleoptera: Chrysomelidae): CO sub(2) Is the Only Volatile** Attractant
Bernklau, E.J.; Bjostad, L.B.
Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO 80523, USA
Journal of Economic Entomology vol. 91, no. 6, pp. 1331-1340 (1998)
ISSN: 0022-0493
DOCUMENT TYPE: Journal article LANGUAGE: ENGLISH

SUBFILE: Ecology Abstracts; Entomology Abstracts; Animal Behavior Abstracts ; Chemoreception Abstracts

In strong contrast to earlier published results, we now conclude that the **attraction** of western **corn rootworm** , Diabrotica virgifera virgifera LeConte, larvae to **corn roots** is caused by CO sub(2) alone, and that no other volatile chemical cues are involved in **attracting** the larvae. Choice test behavioral bioassays were conducted in the laboratory, with volatile corn compounds on one side of the bioassay apparatus and with different concentrations of CO sub(2) on the other side (mass spectrometry was used to measure CO sub(2) concentrations on both sides of the apparatus). Larvae were strongly **attracted** to volatile compounds from corn when ambient air was present on the other side of the bioassay. However, larvae chose equally between the 2 sides of the bioassay when volatile compounds from corn were present on one side and an equivalent concentration of CO sub(2) was present on the other side. When given a choice between corn volatiles and a higher concentration of CO sub(2), the larvae chose the CO sub(2) side significantly more often. In an experiment conducted both with diapausing and nondiapausing strains, the headspace from germinating corn seeds was collected and continuously injected into one side of the bioassay apparatus, and a defined concentration of CO sub(2) was continuously injected into the other side. We tested the possibility that compounds of limited volatility may be involved in larval **attraction** by preparing glass beads coated directly with volatiles produced by germinating corn seeds, and also by testing soil that was removed from **corn roots** . All these experiments indicated that compounds other than CO sub(2) were not involved in larval **attraction** . In other experiments, the soil atmosphere surrounding the roots of growing corn plants was not as **attractive** as an equivalent concentration of CO sub(2) alone, and the headspace from feeding-damaged **corn roots** was not as **attractive** as an equivalent concentration of CO sub(2) alone, indicating that weak repellents were present in these treatments together with the strong **attractant** CO sub(2). Tests with solvent extracts and cryogenic extracts of germinating corn seeds in conjunction with CO sub(2) also indicated the presence of weak repellents in corn for the larvae.

14/3,AB/14 (Item 1 from file: 306)
DIALOG(R)File 306:Pesticide Fact File

00000720 PFF RECORD NUMBER: 122
PREFERRED NAME: chlorethoxyfos
ACTIVITY: **Insecticide**
CHEMICAL CLASS: organophosphorus
CAS REGISTRY NUMBER: 54593-83-8
MOLECULAR WEIGHT: 336.0
MOLECULAR FORMULA: C6H11Cl4O3PS

MAMMALIAN TOXICOLOGY
ACUTE ORAL: Acute oral LD50 for female rats 1.8, male rats 4.8 mg/kg.
SKIN AND EYE: Acute percutaneous LD50 for female rabbits 12.5, male rabbits 18.5 mg/kg. Moderate eye irritant but highly toxic by eye contact (rabbits). Not a skin irritant (rabbits); not a skin sensitiser (guinea pigs).
INHALATION: (4 h) for rats 0.58 ppm (8 mg/m/SUP 3), extremely toxic by inhalation.
ENVIRONMENTAL HEALTH CRITERIA NUMBER: 63 (WHO, 1986; a general review of organophosphorus **insecticides**).
NOEL: For male mice 0.18, female mice 0.21, male rats 0.18, female rats 0.25, male dogs 0.063, female dogs 0.065 mg/kg daily.
TOXICITY CLASS (EPA): I
OTHER: Non-oncogenic, non-teratogenic, non-mutagenic

ECOTOXICOLOGY
BIRDS: Acute oral LD50 (gavage) for bobwhite quail 28 mg/kg.
FISH: LC50 (96 h) for rainbow trout 0.10, bluegill sunfish 0.0023, sheepshead minnow 0.00047 mg/l.

DATA PRESENT: Chemical Class; Chemical Name; CAS Registry Number; Composition; Molecular Weight; Molecular Formula; Boiling Point; Vapor Pressure; Density; Partition Coefficient; Solubility; Stability; Flash Point; Mode of Action; Uses; Formulations; Brand Names; Manufacturer; Supplier; Mammalian Toxicology; Ecotoxicology; Environmental Fate

22/3,AB/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

04703193 BIOSIS NO.: 000080006318
DETERMINATION OF THE QUANTITATIVE ECOCHEMICAL AND ECOTOXICOLOGICAL BEHAVIOR OF PESTICIDES **BY MEANS OF CONTROLLED VENTILATED VEGETATION CHAMBERS**
AUTHOR: SCHUPHAN I
AUTHOR ADDRESS: FACHGRUPPE PFLANZENSCHUTZMITTELFORSCHUNG, ABT. OKOL. CHEM., BIOL. BUNDESANSTALT LAND- FORSTWIRTSCHAFT, 1000 BERLIN 33, GER.
JOURNAL: BER LANDWIRTSCH SONDERH 0 (198). 1985. 21-34. 1985
FULL JOURNAL NAME: Berichte ueber Landwirtschaft Sonderheft
CODEN: BELWA
RECORD TYPE: Abstract
LANGUAGE: GERMAN

ABSTRACT: A concept is presented to evaluate **pesticides** in soil-plant systems and in sections of agro-ecosystems, using ecochemical data obtained from standardized, closed and controlled ventilated **cultivating** chambers. These consist of special constructed **cultivating** containers and attachments for ad- and absorption of portions of volatile organic compounds and the degradation product 14C- **CO2** which is formed from a **pesticide** due to mineralization of the radiolabeled compound. A balance account can be obtained from a **pesticide** 's distribution pattern in various compartments after application of the 14C-labeled compound on the plants or on the soil towards the end of the experiments. Important points on the metabolism of a **pesticide** are included. The efficiency and limits of using the closed **cultivating** systems is shown with an example of foliar spray application of 14C-dichlofluanid (Euparen) used to control fungal diseases on fruits of strawberries. A further development of the closed **cultivating** container led to development of a closed, controlled ventilated vegetation chamber. This may accommodate a section of an agro-ecosystem, providing the possibility to determine the pathway and fate of a chemical quantitatively in parts of the food-chains present in the section of the agro-ecosystem. Because of the size of the vegetation chamber it is necessary that a large air flow through the chamber is guaranteed which is 60 air-exchanges/h. The outlet air leaving the chamber is split into a ratio 1:10. From these constant and defined air flows the 14CO2 liberated as a mineralization product of the test chemical is absorbed from the smaller part and determined quantitatively. Considering the air split ratio it is possible to determine quantitatively 14CO2 along with the other organic volatile components. By utilizing a section of the agro-ecosystem cabbage field with the central **parasite** -beneficial relationship, Pieris brassicae (large cabbage butterfly) and Apanteles glomeratus (wasp of large cabbage butterfly) the fate of 14C-monolinuron was determined. This was followed quantitatively in different trophic levels of the model section of the agro-ecosystem to establish the suitability of the chamber system and to derive the ecochemical and ecotoxicological data.

1985

22/3,AB/2 (Item 1 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03799523 CAB Accession Number: 991809781
Energy and pesticide **(consumption) on Chrysanthemum-growing enterprises. Evaluation and analysis of DART data from 1994 to 1997.**
Original Title: Energie en gewasbescherming op chrysantenbedrijven. Evaluatie en analyse van DART-gegevens 1994 tot en met 1997.
Rapport - Landbouw-Economisch Instituut (LEI)

(No. 2.99.10): 67 pp.
Publication Year: 1999
Editors: Vernooij, C. J. M.; Ploeger, C.
Publisher: -- Den Haag, Netherlands
ISBN: 90-5242-525-6
Language: Dutch
Document Type: Miscellaneous

Data from Dutch growers of Chrysanthemum in greenhouses with at least 1100 m2 under Chrysanthemum production are presented. These enterprises participate in the DART programme for the documentation and analysis of reference horticultural enterprises. The number of Chrysanthemum growers was 33, 38, 39 and 39 from 1994 to 1997, respectively. The average production area increased from 11 300 m2 in 1994 to 13 600 m2 in 1997. Data were collected on greenhouse area, cultivars, **planting** dates, **cultivation** systems, use of irrigation and fertilizers, plant protection equipment, types of greenhouses, and energy-saving systems. Monthly data were also collected on the use of biological and chemical control methods, gas consumption for heating and electricity consumption for supplementary light, and production and net returns. The use of more supplementary light and higher **CO2** consumption resulted in higher production/m2, while gas consumption and **CO2** production remained at equivalent levels due to increasing use of energy-saving systems. **Pesticide** use was stabilized at 48 kg/ha, with reductions in the use of **insecticides** (inhibition to use dichlorvos) and acaricides and increasing use of fungicides and growth inhibitors. Integrated pest management and curative methods are regarded as the best options to reduce **insecticide** use. Resistant plant material and better climate regulation will hopefully result in reduced fungicide use. Greenhouses with supplementary light showed 9-18% more efficiency in energy consumption (expressed in Dfl of sold cut flowers) than greenhouses without supplementary light. 9 ref.

22/3,AB/3 (Item 1 from file: 94)
DIALOG(R)File 94:JICST-EPlus

04989129 JICST ACCESSION NUMBER: 01A0794746 FILE SEGMENT: JICST-E
Research on the systematization and demonstation of an environmental conservation type agricultural production technology in harmony with environment. Demonstration of environmental preservation type cultivation **in cabbage. Environmental preservation type** cultivation **in summer-** sowing **autumn-havesting cabbage: Evaluation of natural enemy phase. Rise and fall of leaf living** insects **. (Agricultural Research Inst. Kanagawa Prefecure S).**
SUZUKI MAKOTO (1); WATANABE YASUMITSU (2); (2) Agric. Res. Inst. of Kanagawa Prefect.
Kanagawaken Nogyo Sogo Kenkyujo Shiken Kenkyu Seisekisho (Kankyo Hozengata Gennoyaku, Genkagaku Hiryo Saibai Taikei no Jissho) Heisei 12 Nendo, 2001, PAGE.53-54, TBL.2
JOURNAL NUMBER: N20011630Q
UNIVERSAL DECIMAL CLASSIFICATION: 635.1/.8 581.522+591.552 632.937
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication
ABSTRACT: In order to collect and investigate natural enemy phase of cabbage moth and tobacco cutworm under the conditions of an agricultural chemical decreasing and chemical fertilizer decreasing **cultivation** and to compare the reuslts with traditional **cultivation** , the authors investigated the transition of noxious **insects** that are parasitic on cabbage in the period between **planting** and harvesting. The authors sampled 10 pieces of cabbages in each groth stage from both of the demonstration lot and the traditional lot, and put each of them

into a bag, and applied anesthesia by sending cabon dioxide gas into the bags. They decomposed the cabbages, before **insects** awoke from anesthesia, and investigated the species and number of the **insects** that were parasitic on the leaves. Among **insects** living on the leaves of cabbage, the following were considered as natural enemies: parasitic bees, predatory beetles, spiders, horseflies, and Cecidomyiidae. The results showed that the selective **insecticide** used in the demonstration lot was a pest control system that suppresses noxious **insects** and retains conventional natural enemies to some extent.

22/3,AB/4 (Item 2 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03211370 JICST ACCESSION NUMBER: 97A0521030 FILE SEGMENT: JICST-E
Responses of Stored Grain Insects **to** Carbon Dioxide **. 2. Effects of Temperature and Exposure Period on the Toxicity of** Carbon Dioxide **to Sitophilus granarius, Lasioderma serricorne, Plodia interpunctella, Ephestia cautella and Ephestia kuehniella.**
KISHINO HIDEAKI (1); GOTO MUTSURO (1); IMAMURA MORIKAZU (1); SOUMA YUKIHIRO (1)
(1) Minist. of Agric., For. and Fish.,Yokohama Plant Prot. Stn.
Shokubutsu Boekijo Chosa Kenkyu Hokoku(Research Bulletin of the Plant Protection Service Japan), 1996, NO.32, PAGE.57-61, FIG.1, TBL.4, REF.6
JOURNAL NUMBER: S0120AAL ISSN NO: 0387-0707 CODEN: SBCKA
UNIVERSAL DECIMAL CLASSIFICATION: 632.934 632.7+632.654.2
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: Responses of all stages of S. granarius to 40, 50, 60, 70, 80, and 100% **CO2** for 5 days at 20 or 25.DEG.C. showed that larvae and pupae were almost the same resistant and they were more resistant stages than egg and adult stages. The larvae and pupae were killed completely under conditions of 40-80% **CO2** for 35 days at 20.DEG.C. or 21 days at 25.DEG.C.. All stages of L. serricorne and 3 species of Lepidoptera (P. interpunctella, E. cautella and E. kuehniella) were also killed completely under conditions of 50% **CO2** for 14 days at 20.DEG.C. or 10 days at 25.DEG.C. and 50% **CO2** for 7 days at 20.DEG.C. or 5 days at 25.DEG.C. respectively. (author abst.)

22/3,AB/5 (Item 3 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03211368 JICST ACCESSION NUMBER: 97A0521028 FILE SEGMENT: JICST-E
Disinfestation of Pests **on Cut Flowers with Gas Mixtures of Methyl Bromide, Phosphine and** Carbon Dioxide **.**
KAWAKAMI F (1); SOMA Y (1); TSUTSUMI T (2); SATO T (2); YUGE T (2); YAMAMOTO M (2); KOMATSU H (3); INOUE T (3)
(1) Yokohama Plant Protection Station, Yokohama, JPN; (2) Teijin Chemicals Ltd., Hiroshima, JPN; (3) Japan Fumigation Technol. Assoc., Tokyo, JPN
Shokubutsu Boekijo Chosa Kenkyu Hokoku(Research Bulletin of the Plant Protection Service Japan), 1996, NO.32, PAGE.39-46, FIG.1, TBL.4, REF.4
JOURNAL NUMBER: S0120AAL ISSN NO: 0387-0707 CODEN: SBCKA
UNIVERSAL DECIMAL CLASSIFICATION: 635.9 632.7+632.654.2
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: Each stage of eight species of insect and arthropod **pests**

(Tetranychus kanzawai, T. urticae, Thrips palmi, Trialeurodes vaporariorum, Myzus persicae, Aphis gossypii, Planococcus kraunhiae and Plutella xylostella) on cut flowers of chrysanthemum and orchid was fumigated by mixture gas with methyl bromide (10 g/m3), phosphine (3 g/m3) and **carbon dioxide** (5%) for 3, 4 and 6 hours at 15 and 20.DEG.C.. T. kanzawai egg was the most resistant stage to the mixture gas fumigation and the stage was killed completely at doses of 13 g/m3 of methyl bromide, 3 g/m3 of phosphine and 5% of **carbon dioxide** with 40% (v/v) loading at 15.DEG.C. for 4 hours and 20.DEG.C. for 3 hours. Thirteen percent of initial dose of methyl bromide was sorbed by cut flowers and packing materials, while no sorption was observed on phosphine, and **carbon dioxide** concentration increased due to respiration of cut flowers. No injury was observed on six cultivars of chrysanthemum and 4 cultivars of orchid fumigated at 15.DEG.C. for 4 hours. A slight injury was confirmed on both cut flowers when fumigated at 20.DEG.C. for 3 hours, followed by storage at 15.DEG.C. or above. Rating of the injury, however, could be acceptable in commercial trading. The use of three fumigants is available for not only avoiding flammability of phosphine, but also enhancing mortality for **pests** and reducing chemical injury on cut flowers with reduction of quantity of methyl bromide per cubic meter. (author abst.)

22/3,AB/6 (Item 4 from file: 94)

02654995 JICST ACCESSION NUMBER: 96A0241807 FILE SEGMENT: JICST-E

Response of Stored Grain Insects **to** Carbon Dioxide . **1. Effects of Temperature, Exposure Period and Oxygen on the Toxicity of** Carbon Dioxide **to Sitophilus zeamais MOTSCHULSKY, Sitophilus granarius L. and Tribolium confusum JAQUELIN DU VAL.**

SOUMA YUKIHIRO (1); KISHINO HIDEAKI (1); GOTO MUTSURO (1); YABUTA SHIGEKI (1); MATSUOKA IKUKO (1); KATO TOSHIYUKI (1)
(1) Minist. of Agric., For. and Fish.,Yokohama Plant Prot. Stn.

Shokubutsu Boekijo Chosa Kenkyu Hokoku(Research Bulletin of the Plant Protection Service Japan), 1995, NO.31, PAGE.25-30, FIG.2, TBL.4, REF.15
JOURNAL NUMBER: S0120AAL ISSN NO: 0387-0707 CODEN: SBCKA
UNIVERSAL DECIMAL CLASSIFICATION: 632.951
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication

ABSTRACT: Response of eggs, larvae, pupae and adults of S. zeamais and T. confusum to 40-100% **CO2** for 5 days at 20.DEG.C. or 25.DEG.C. showed that the pupae was the most resistant stage of S. zeamais at 20.DEG.C. and 25.DEG.C. and the pupae and the larvae were the most resistant stage of T. confusum, respectively, for at 20.DEG.C. and 25.DEG.C.. The LT95 value for the pupae of S. granarius was higher than that for the pupae or larvae of S. zeamais and T. confusum when they were fumigated with 50 or 80% **CO2** at 20.DEG.C. or 25.DEG.C.. The toxicity of **CO2** against S. zeamais pupae was enhanced by the presence of O2. The relationship between **CO2** concentrations and mortality ratios indicated that high mortality of T. confusum and low mortality of S. zeamais were obtained from the condition of high concentration of **CO2** . The larvae and the pupae which were the most resistant stage of S. zeamais and T. confusum were killed completely under the conditions of 40-80% **CO2** for 21 days at 20.DEG.C. or for 14 days at 25.DEG.C.. (author abst.)

22/3,AB/7 (Item 1 from file: 144)

DIALOG(R)File 144:Pascal

14352554 PASCAL No.: 00-0003644
Weeds, insects , and diseases
Climate change: impacts on agriculture
PATTERSON D T; WESTBROOK J K; JOYCE R J V; LINGREN P D; ROGASIK J
REILLY J M, ed
NCDA&CS, Raleigh, North Carolina 27611, United States; USDA/ARS, College Station, Texas 77840, United States; USDA/ARS, Lane, Oklahoma 74555, United States; Agricultural Institute for Climatic Research, Muncheberg, Germany
Massachusetts Institute of Technology, Joint Program on the Science and Policy of Global Change, 77 Massachusetts Ave., E40-263, Cambridge, MA 02139-4307, United States
Journal: Climatic change, 1999, 43 (4) 711-727
Language: English
The geographic distribution, vigor, virulence, and agricultural impact of weeds, **insects** , and plant pathogens will be affected by climatic changes accompanying the global "greenhouse effect." Weed/crop competitive interactions, particularly among species differing in photosynthetic pathway (C SUB 3 v C SUB 4), may be altered, with the C SUB 3 species favored by increasing CO SUB 2 . Physiological and biochemical changes induced in host crop plants by rising CO SUB 2 may affect feeding patterns of pest **insects** . Compilation of climatic thresholds for phenological development of pest **insects** reveals the potential for shifts in pest behavior induced by global warming and other climatic change. Generation times may be reduced, enabling more rapid population increases to occur. Poleward migration may be accelerated during the crop season. The epidemiology of plant diseases also will be altered. Prediction of disease outbreaks will be more difficult in periods of rapidly changing climate and unstable weather. Environmental instability and increased incidence of extreme weather may reduce the effectiveness of **pesticides** on targeted **pests** or result in more injury to non-target organisms. Biological control may be affected either negatively or positively. Overall, the challenge to agriculture from **pests** probably will increase.

22/3,AB/8 (Item 1 from file: 306)
DIALOG(R)File 306:Pesticide Fact File

00000832 PFF RECORD NUMBER: 209
PREFERRED NAME: diazinon
ACTIVITY: **Insecticide** , acaricide
CHEMICAL CLASS: organophosphorus
CAS REGISTRY NUMBER: 333-41-5
MOLECULAR WEIGHT: 304.3
MOLECULAR FORMULA: C12H21N2O3PS

MAMMALIAN TOXICOLOGY
REVIEWS: **Pesticide** residues in food - 1993, FAO Plant Production and Protection Paper, 122, 1993. **Pesticide** residues in food - 1993 evaluations, Part II - Toxicology. WHO, WHO/PCS/94.4, 1994.
ACUTE ORAL: Acute oral LD50 for rats 1250, mice 80-135, guinea pigs 250-355 mg/kg.
SKIN AND EYE: Acute percutaneous LD50 for rats >2150, rabbits 540-650 mg/kg. Not an irritant (rabbits).
INHALATION: (4 h) for rats >2330 mg/m/SUP 3.
ENVIRONMENTAL HEALTH CRITERIA NUMBER: 63 (WHO, 1986; a general review of organophosphorus **insecticides**).
NOEL: (2 y) for rats 0.06 mg/kg b.w.; (1 y) for dogs 0.015 mg/kg b.w.

daily, humans 0.02 mg/kg b.w.
ADI: (JMPR) 0.002 mg/kg b.w. (1993).
TOXICITY CLASS (WHO): II
TOXICITY CLASS (EPA): II or III
RISK SYMBOLS (EEC): Xn (R22

ECOTOXICOLOGY
BIRDS: Acute oral LD50 for mallard ducklings 3.5, young pheasants 4.3 mg/kg.
FISH: LC50 (96 h) for bluegill sunfish 16, rainbow trout 2.6-3.2, carp 7.6-23.4 mg/l.
BEES: Highly toxic to bees.
DAPHNIA: LC50 (48 h) 0.96 .mu.g/l.

DATA PRESENT: Chemical Class; Chemical Name; CAS Registry Number; EINECS/ELINCS Number; Composition; Molecular Weight; Molecular Formula; Physical State; Boiling Point; Vapor Pressure; Density; Partition Coefficient; Solubility; Stability; Flash Point; Patents; Mode of Action; Uses; Phytotoxicity; Formulations; Compatibility; Brand Names; Manufacturer; Supplier; Mammalian Toxicology; Ecotoxicology; Environmental Fate

29/3,AB/1 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

12198227 PASCAL No.: 95-0414385

Germinating corn extracts and 6-methoxy-2-benzoxaolinone : western corn rootworm **(Coleoptera: Chrysomelidae) larval** attractants **evaluated with soil insecticides**

HIBBARD B E; PEAIRS F B; PILCHER S D; SCHROEDER M E; JEWETT D K; BJOSTAD L B

Colorado State univ., dep. entomology, Fort Collins CO 80523, USA

Journal: Journal of economic entomology, 1995, 88 (3) 716-724

Language: English

6-Methoxy-2-benzoxazolinone (MBOA), a host-location semiochemical for western **corn rootworm** SUB , Diabrotica virgifera virgifera LeConte, larvae, was tested as an **attractant** with the experimental insecticide chlorethoxyphos in laboratory and field experiments. Crude dichloromethane extracts of germinating corn seedlings were tested as an additional **attractant** for incorporation in soil insecticides (chlorethoxyphos and carbofuran) in laboratory experiments. Significantly more western **corn rootworm** larvae were recovered in the core portion of the bioassay apparatus (the portion where the **attractant** was located) in laboratory experiments when MBOA or a crude dichloromethane extract of germinating corn seedlings was present with insecticide than in the other three treatments (**attractant** alone, insecticide alone, and control), indicating that MBOA or a crude dichloromethane extract of germinating corn seedlings are behaviorally active to western **corn rootworm** larvae at ambient **carbon dioxide** levels. In these same experiments, significantly more larvae died in the core portion of the bioassay when insecticide was present with an **attractant** than when insecticide alone or **attractant** alone were present, or in the control, indicating that either MBOA or crude dichloromethane extract of germinating corn seedlings can be used to increase insecticide efficacy in laboratory bioassays. Naturally infested and artificially infested field experiments were conducted in 1991 and 1992. Most of the MBOA/chlorethoxyphos combinations did not significantly lower **corn rootworm** damage when compared to the same level of chlorethoxyphos without MBOA. The only MBOA/chlorethoxyphos combination that provided significantly reduced **corn rootworm** damage was the 1992 naturally infested field experiments in Akron, CO. Treatments with granules containing both 2.5% chlorethoxyphos and 3 mg/g MBOA had significantly less **corn rootworm** damage (lower root ratings) than treatments with 2.5% chlorethoxyphos w

37/3,AB/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

06280234 BIOSIS NO.: 000086114417
ORIENTATION OF GRASS GRUB COSTELYTRA-ZEALANDICA COLEOPTERA SCARABAEIDAE TO A CARBON DIOXIDE SOURCE
AUTHOR: GALBREATH R A
AUTHOR ADDRESS: ENTOMOL. DIV., DSIR, PRIVATE BAG, AUCKLAND, NEW ZEALAND.
JOURNAL: N Z ENTOMOL 11 (0). 1988. 6-7. 1988
FULL JOURNAL NAME: New Zealand Entomologist
CODEN: NEZEA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Laboratory experiments showed that Costelytra zealandica larvae, like other soil **insects** , are **attracted** to a **CO2** source.

1988

37/3,AB/2 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

06981010 Genuine Article#: 111FQ Number of References: 0
Title: Attracting termites **with** carbon dioxide
Author(s): ANONYMOUS
Journal: FOREST PRODUCTS JOURNAL, 1998, V48, N7-8 (JUL-AUG), P6-6
ISSN: 0015-7473 Publication date: 19980700
Publisher: FOREST PRODUCTS SOC, 2801 MARSHALL COURT, MADISON, WI 53705-2295
Language: English Document Type: NEWS ITEM

37/3,AB/3 (Item 1 from file: 44)
DIALOG(R)File 44:Aquatic Sci&Fish Abs

00649670 ASFA Accession Number: 4433470
Evaluation of butanone, carbon dioxide, and 1-octen-3-ol as attractants for mosquitoes associated with north central Florida bay and cypress swamps
Kline, D L; Mann, M O
United States Department of Agriculture, Agricultural Research Service, Center for Medical, Agricultural and Veterinary Entomology, PO Box 14565, Gainesville, FL 32604, USA
"Journal of the American Mosquito Control Association [J. Am. Mosq. Control Assoc.]", vol. 14, no. 3, p. 289-297, Sep 1998
Field studies were conducted to determine the responses of mosquitoes found in north central Florida bay and cypress swamps to carbon dioxide (CO sub(2)), light, butanone, and 1-octen-3-ol (octenol), alone and CO sub(2) in combination with each of the others. The response of these mosquito species to 5 CO sub(2) release rates (2, 20, 100, 200, and 2,000 ml/min) of CO sub(2) was also determined. The use of CO sub(2) resulted in a response in all the species studied; the pattern of response to increasing CO sub(2) levels varied from species to species. In general, collection size increased as CO sub(2) release rate increased; however, 5 species (Aedes dupreei, Anopheles perplexens, Culiseta melanura, Culex erraticus and Mansonia titillans) deviated from this pattern. Collection size of Ae. dupreei, Cs. melanura, and Cx. erraticus decreased at the 2,000 ml/min release rate. Collection size of An. perplexens and Ma. titillans remained constant at each CO sub(2) level to which these species responded. In the CO sub(2) and light studies, the general pattern for collection size was: CO sub(2) + light > CO sub(2) alone > light alone. The combination CO

sub(2) + octenol (2.2 mg/h) resulted in a synergistic response (i.e., greater than the combined response obtained by CO sub(2) and octenol alone) for all species except Cs. melanura, Culex nigripalpus, and Culex restuans. Only 2 species (Aedes atlanticus and Aedes canadensis) responded to octenol in relatively large numbers (i.e., response to octenol alone greater than or equal to 5% of that obtained by using CO sub(2) alone at the 200 ml/min release rate). Octenol at the release rate tested repelled Cs. melanura. The butanone + CO sub(2) bait combination increased the responses compared to CO sub(2) alone of Aedes infirmatus, Culex salinarius, Coquillettidia perturbans, and Psorophora ferox, but decreased the response of Cs. melanura.

37/3,AB/4 (Item 2 from file: 44)
DIALOG(R)File 44:Aquatic Sci&Fish Abs

00627139 ASFA Accession Number: 4339158
Responses of mosquitoes of the Anopheles farauti complex to 1-octen-3-ol and light in combination with carbon dioxide in northern Queensland, Australia
Van den Hurk, A F; Beebe, N W; Ritchie, S A
Trop. Public Health Unit, P.O. Box 1103, Cairns, Queensland 4870, Australia
Medical and Veterinary Entomology "MED. VET. ENTOMOL.", vol. 11, no. 2, p. 177-180, Apr 1997
In northern Queensland, Australia, three experiments were conducted to determine the response of mosquitoes of the Anopheles farauti complex to CDC traps baited with four attractant combinations: octenol + CO sub(2) and light: octenol and light; CO sub(2) and light; or CO sub(2) and octenol without light. A CDC-modified updraft light-trap was also trialled, but did not significantly enhance collections of An. farauti sensu lato. The combination of light, octenol and CO sub(2) caught significantly more An. farauti s.l. (both An. farauti No. 1 and No. 2 sibling species) when compared to CO sub(2) and light alone. Only small numbers of the An. farauti complex were captured when CDC traps were baited with octenol alone, i.e. no light or CO sub(2).

37/3,AB/5 (Item 3 from file: 44)
DIALOG(R)File 44:Aquatic Sci&Fish Abs

00438828 ASFA Accession Number: 3000225
Evaluation of 1-octen-3-ol and carbon dioxide as black fly (Diptera: Simuliidae) attractants in Arkansas.
Atwood, D W; Meisch, M V
Dep. Entomol., Univ. Arkansas, Fayetteville, AR 72701, USA
"J. AM. MOSQ. CONTROL ASSOC.", vol. 9, no. 2, p. 143-146, 1993
Carbon dioxide and 1-octen-3-ol were evaluated individually and in combination as black fly attractants. Significantly greater numbers of Cnephia pecuarum were collected in traps baited with CO sub(2) and CO sub(2) + octenol as compared with octenol alone or no bait. While greater numbers of C. pecuarum) were collected in traps baited with the combination of CO sub(2) and octenol as opposed to CO sub(2) alone, results were only significantly different (P greater than or equal to 0.05) in one test. In contrast, significantly (P greater than or equal to 0.05) more adults of Simulium meridionale) were collected in traps baited with CO sub(2) alone. Octenol alone was not an effective attractant for the black fly species collected in the course of this study. In addition, use of octenol in conjunction with CO sub(2) may impair representative sampling of black fly species present in a given area.

37/3,AB/6 (Item 1 from file: 50)
DIALOG(R)File 50:CAB Abstracts

00489268 CAB Accession Number: 770545682
The physiology of hematophagous insect/animal host relationships.
Galun, R.
Israel Institute for Biological Research, Ness-Ziona, Israel.
Conference Title: Proceedings of XV International Congress of Entomology. Washington, D.C., August 19-27, 1976.
p.257-265
Publication Year: 1977
Editors: Packer, J. S.; White, D.
Publisher: Entomological Society of America. -- College Park, Maryland, USA
Language: English
Document Type: Miscellaneous
The host specificity of haematophagous arthropods is discussed with special reference to the role of kairomones and allomones in host selection, the role of nutrients in host-insect interactions, and food utilisation as a factor in host specificity. The location of the host involves orientation based on vision, heat, **carbon dioxide** , water vapour and olfactory stimuli. Polyphagous **parasites** are **attracted** mainly by **carbon dioxide** and several components of sweat, especially lactic acid. Mono- and oligophagous **parasites** are **attracted** by specific, as yet unidentified, host kairomones, usually enhanced by **carbon dioxide** . Attachment to the host and probing are affected by physical and chemical attractants and deterrents of host skin. All the haematophagous arthropods that have been studied have been found to be stimulated to gorge by adenosine nucleotides released from blood platelets, which aggregate in the region penetrated by the parasite.The level of some B vitamins is very low in the blood of many vertebrates, and a wide variety of blood-sucking arthropods possess symbiotic microorganisms that supply the deficient vitamins. Species that do not possess symbionts exhibit normal development only on a limited host range. Host-specific ectoparasites often encounter difficulties in digesting 'foreign' blood.The exposure of the host to the parasite often triggers an immune response, resulting in the rejection of the parasite on subsequent exposures. 48 ref.

37/3,AB/7 (Item 1 from file: 76)
DIALOG(R)File 76:Life Sciences Collection

01979056 3830877
Attractiveness of CO sub(2) and synthetic honey bee (Apis mellifera L.) (Hymenoptera: Apidae) cuticular hydrocarbons to the honey bee tracheal mite, Acarapis woodi (Rennie) (Acari: Tarsonemidae)
Sugden, E.A.; Williams, K.R.; Webster, T.C.
9807 NE 140th St., Bothell, WA 98011-5132, USA
INT. J. ACAROL. vol. 21, no. 4, pp. 283-292 (1995)
ISSN: 0164-7954
DOCUMENT TYPE: Journal article LANGUAGE: ENGLISH
SUBFILE: Entomology Abstracts

Despite the devastation caused by the honey bee tracheal mite, Acarapis woodi, over its range, it is difficult to detect and little is known about what attracts the mite to its host. Based on previous studies of tracheal mites and of other blood sucking arthropods, we developed bioassay procedures to study the attractiveness of CO sub(2) and of honey bee cuticular hydrocarbons to dispersing tracheal mites. The CO sub(2) assay

consisted of a three-choice test between streams of air, a CO sub(2)/air mix, and a no-gas control. Air was chosen most frequently overall. Weighted scores were calculated based on the strength and frequency of response, and in this case the CO sub(2)/air mixture was favored. Known hydrocarbon mixtures and hexane extracts of bees were applied to pipecleaners and inserted into small test hives. No tracheal mites were recovered from any of these, failing to support other studies that found these substances to be attractive in the lab. The results are discussed in relation to what is known about the host finding behavior of other arthropods. Understanding this behavior in tracheal mites would be useful for developing survey or control tactics of this serious pest.

37/3,AB/8 (Item 2 from file: 76)
DIALOG(R)File 76:Life Sciences Collection

00559943 0257721
Prospects for Autosterilisation of Tsetse Flies, Glossina spp. (Diptera: Glossinidae), Using Sex Pheromone and Bisazir in the Field.
Langley, P.A.; Coates, T.W.; Carlson, D.A.; Vale, G.A.; Marshall, J.
Tsetse Res. Lab., Univ. Bristol, Langford, Bristol BS18 7DU, UK
BULL. ENTOMOL. RES. vol. 72, no. 2, pp. 319-327 (1982.)
DOCUMENT TYPE: Journal article LANGUAGE: ENGLISH
SUBFILE: Entomology Abstracts; Chemoreception Abstracts

In the presence of the odour of carbon dioxide and acetone, an electrified net adjacent to a stationary cylindrical black model in the Zambezi Valley, Zimbabwe, in the hot dry season caught more adults of G. morsitans morsitans Westw. and G. pallidipes Aust. than in the absence of odour. In the absence of odour, a moving model attracted more G. m. morsitans males than did a stationary model. Between 20 and 50% of males of G. m. morsitans but only 0 to 12% of males of G. pallidipes near a model were caught by electrified decoys (surrogate females) on the model. Hidden observers recorded the numbers of flies copulating with decoys baited with pheromone or pheromone plus bisazir (P,P-bis(1-aziridinyl)-N-methylphosphinothioic amide) on a stationary model with odour between 16.00 and 19.00 h daily. A comparison with laboratory data suggested that further refinement of technique will allow pheromone-baited decoys to be used in the autosterilisation of G. m. morsitans males with bisazir in the field.

37/3,AB/9 (Item 1 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text

03767667 H.W. WILSON RECORD NUMBER: BGSI98017667
Termite tablets.
Allen, Joseph Baneth
Popular Science (Pop Sci) v. 252 no5 (May '98) p. 40
ISSN: 0161-7370
LANGUAGE: English
COUNTRY OF PUBLICATION: United States

ABSTRACT: Researchers at the University of Colorado have discovered that termites' natural dependence on carbon dioxide to find food and shelter can be used against the insects as a form of pest control. Entomologist Louis Bjostad and colleagues Erich Fromm and Elisa Bernklau conducted tests suggesting that **termites** are naturally **attracted** to **carbon dioxide** because rotting wood, the creatures' main food source, releases the gas and because concentrations of the gas inside termite colonies are higher than that of ambient air. They are now developing nontoxic effervescent tablets

that would release **carbon dioxide** underground to **lure termites** away from houses and other structures.

37/3,AB/10 (Item 2 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text

03756095 H.W. WILSON RECORD NUMBER: BGSI98006095
A deadly passion.
AUGMENTED TITLE: termites' lust for carbon dioxide could be exploited by pest controllers
Boyce, Nell
New Scientist (New Sci) v. 156 (Dec. 20-27 '97) p. 12
SPECIAL FEATURES: il ISSN: 0262-4079
LANGUAGE: English
COUNTRY OF PUBLICATION: United Kingdom

ABSTRACT: Researchers at a meeting this week of the Entomological Society of America in Nashville, Tennessee, have reported an environmentally friendly method of preventing damage caused by termites. Louis Bjostad of Colorado State University in Fort Collins and Elisa Bernklau found that **termites** were **attracted** to **carbon dioxide** . Consequently, he proposed that a chemical that slowly releases **carbon dioxide** could be used to **lure termites** away from areas where they may cause damage.

37/3,AB/11 (Item 3 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text

03754136 H.W. WILSON RECORD NUMBER: BGSI98004136
Chemical lunch for termites.
Freeman, Karen
New York Times (Late New York Edition) (N Y Times (Late N Y Ed)) (Jan. 27 '98) p. F4
SPECIAL FEATURES: il ISSN: 0362-4331
LANGUAGE: English
COUNTRY OF PUBLICATION: United States

ABSTRACT: Termites invading houses may be following the aroma of carbon dioxide. Lou Bjostad of Colorado State University says that insects flock to certain concentrations of carbon dioxide and that termites prefer air with about 1 percent carbon dioxide, which is approximately one-tenth the concentration in human breath. Thus, the right concentration of **carbon dioxide** mixed with small amounts of insecticide could act as an " **attracticide** " that **lures termites** to a highly localized spot, thereby avoiding the need to spray an entire house.

37/3,AB/12 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

13971651 PASCAL No.: 99-0154189
Olfactory responses of female Culex quinquefasciatus Say (Diptera: Culicidae) in a dual-choice olfactometer
MBOERA L E G; KNOLS B G J; TAKKEN W; HUISMAN P W T
Laboratory of Entomology, Wageningen Agricultural University, Wageningen, Netherlands; National Institute for Medical Research, Ubwari Field Station, Muheza, Tanzania; International Centre of Insect Physiology and Ecology, Nairobi, Kenya
Journal: Journal of vector ecology, 1998, 23 (2) 107-113

Language: English

37/3,AB/13 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal

10215041 PASCAL No.: 92-0420944
Horizontal movement of adult Ixodes dammini (Acari : Ixodidae) attracted to CO SUB 2 -baited traps
FALCO R C; FISH D
New York medical coll., dep. community preventive medicine, medical entomology lab., Valhalla NY 10595, USA
Journal: Journal of medical entomology, 1991, 28 (5) 726-729
Language: English

37/3,AB/14 (Item 3 from file: 144)
DIALOG(R)File 144:Pascal

07233992 PASCAL No.: 86-0122793
The role of 1-octen-3-ol, acetone and carbon dioxide in the attraction of tsetse flies, Glossina spp. (Diptera: Glossinidae), to ox odour
VALE G A; HALL D R
Dep. veterinary services, Causeway Hazare, Zimbabwe
Journal: Bulletin of entomological research, 1985, 75 (2) 209-217
Language: ENGLISH
Etude faite avec Glossina morsitans et Glossina pallidipes

37/3,AB/15 (Item 1 from file: 203)
DIALOG(R)File 203:AGRIS

02310682 AGRIS No: 1999-033870
Responses of the tick, Amblyomma hebraeum (Acari: Ixodidae), to carbon dioxide
Anderson, R.B.; Scrimgeour, G.J.; Kaufman, W.R. (Department of Biological Sciences, University of Alberta, Edmonton, Alberta, T6G 2E9 (Canada))
Journal: Experimental and Applied Acarology, 1998, v. 22(11) p. 667-681
Language: English

37/3,AB/16 (Item 1 from file: 357)
DIALOG(R)File 357:Derwent Biotech Res.

0066949 DBA Accession No.: 87-11297 PATENT
Amplification of nematodes parasitic on insects - biological control agent culture
PATENT ASSIGNEE: Oji-Paper 1987
PATENT NUMBER: JP 62135402 (Kokai) PATENT DATE: 870618
WPI ACCESSION NO.: 87-209262 (8730)
PRIORITY APPLIC. NO.: JP 85273382 APPLIC. DATE: 851206
NATIONAL APPLIC. NO.: JP 85273382 APPLIC. DATE: 851206
LANGUAGE: Japanese
ABSTRACT: The growth of nematodes parasitic upon insects comprises feeding them on a medium containing the intestines of poultry. The method gives a greater rate of amplification than methods using heart, liver, or

kidney of hen, sheep, cattle, or pig. The nematodes are useful as biological control agents, and the bark compost supporting the nematodes may be used as soil conditioner. Suitable nematodes include Neoaplectana spp. and Heterorhabditis spp. The infectious nematode larvae are **attracted** to **insects** by released **CO2** , and by uric acid and arginine in their excrement. The larvae enter the insect via a spiracle or the anus and release bacteria (e.g. Xanorhabdus nematophilus) which attack and kill the insect within 2 days. The growth medium used may include hen, duck, or peacock intestines. They are preferably washed to remove their contents, then juiced or cut into small fragments. The mixture is then fixed in a polyurethane sponge. The infection type larvae are then inoculated onto the medium and incubated at 25 deg. (5pp)

44/3,AB/1 (Item 1 from file: 50)
DIALOG(R)File 50:CAB Abstracts

04001287 CAB Accession Number: 20003031149
Evaluation of some insecticidal formulations against major insect pests **(Melanagromyza sojae Zehnt. and Bemisia tabaci Genn.) of soybean.**
Siddiqui, K. H.; Trimohan
Division of Entomology, Indian Agricultural Research Institute, New Delhi-110 012, India.
Shashpa vol. 7 (2): p.167-170
Publication Year: 2000
ISSN: 0971-4979 --
Language: English
Document Type: Journal article
The efficacy of different insecticidal formulations, granules of carbosulfan 3G (30 kg/ha), phorate 10G (10 kg/ha) applied in furrows at the time of **sowing** ; carbosulfan 25 DS (30 g/kg seed), **thiamethoxam** 70 WS (3 and 5 g/kg seed), chlorpyrifos 20 EC (4 ml/kg seed) as seed treatment and chlorpyrifos 20 EC (0.04%), **thiamethoxam** 25 WG (100 g/ha), imidacloprid 17.8 SL (100 ml/ha) as foliar spray was evaluated in the field in New Delhi, India, against the major insect **pests** of soyabean, stemfly, Melanagromyza sojae (Zehnt.) and whitefly, Bemisia tabaci Genn. during kharif 1998 and 1999 seasons. Seed treatment with **thiamethoxam** 70 WS (3.0 g/kg seed) was very effective for two years in controlling stemfly infestation and yellow mosaic virus (YMV) disease incidence transmitted by whitefly resulting in a significant increase in grain yield. Prior to this no other **insecticide** was found so effective in controlling YMV disease to such a low level (rating 2.3 and 2.2 in 1998 and 1999, respectively, compared with 5.0 to 7.7 in other insecticidal treatments and untreated control). 11 ref.

44/3,AB/2 (Item 2 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03782200 CAB Accession Number: 991108647
AdageTM (thiamethoxam) seed treatment for cotton.
Zang, L.; Ngo, N.; Minto, B.
Novartis Crop Protection, Inc., Greensboro, NC, USA.
1999 Proceedings Beltwide Cotton Conferences, Orlando, Florida, USA, 3-7 January, 1999: Volume 2.
Conference Title: 1999 Proceedings Beltwide Cotton Conferences, Orlando, Florida, USA, 3-7 January, 1999: Volume 2.
p.1104-1106
Publication Year: 1999
Editors: Dugger, P.; Richter, D.
Publisher: National Cotton Council -- Memphis, USA
Language: English
Document Type: Conference paper
Adage (**thiamethoxam**) is a new highly effective seed treatment **insecticide** belonging to the chemical class known as **neonicotinoids** . Adage at 200 g ai/100 kg cotton seed is providing early season control of aphids and thrips similar to the current Temik(R) 15G (aldicarb) standard applied in-furrow at **planting** at 0.5 lbs. ai per acre (3.5 lbs. product). Yields from 4 cooperator trials conducted in 1998 in the USA are also similar for Adage and Temik at these rates. Adage outyielded\the fungicide control by over 260 lbs. lint cotton per acre in 1997 and over 60 lbs. lint cotton per acre in 1998. At a use rate of 12.7 gr. ai per acre (based on **planting** 14 lbs. seed per acre) Adage has an excellent worker safety profile, while also being safe to the crop and the environment and should make an excellent new product for the cotton

producer.

44/3,AB/3 (Item 3 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03782198 CAB Accession Number: 991108645
Evaluation of Adage 5FSTM for early-season insect control.
Tol, N. B. van; Lentz, G. L.
West Tennessee Experiment Station, The University of Tennessee, Jackson, TN, USA.
1999 Proceedings Beltwide Cotton Conferences, Orlando, Florida, USA, 3-7 January, 1999: Volume 2.
Conference Title: 1999 Proceedings Beltwide Cotton Conferences, Orlando, Florida, USA, 3-7 January, 1999: Volume 2.
p.1098-1101
Publication Year: 1999
Editors: Dugger, P.; Richter, D.
Publisher: National Cotton Council -- Memphis, USA
Language: English
Document Type: Conference paper
Widely used at- **planting** **insecticides** , Temik (aldicarb) and Gaucho (imidacloprid) seed treatment, were evaluated alongside a new **insecticide** seed treatment, Adage 5FSTM (**thiamethoxam**), at two rates in cotton fields in Tennessee. More adult and larval thrips were observed in Gaucho and untreated plots, while Temik provided the greatest thrips control. Adage provided good thrips control but appeared to diminish in plants by 28 days after **planting** . All **insecticide** treatments resulted in more total lint than no treatment, and Gaucho seed treatment plots produced numerically more lint than Adage- and Temik-treated plots. Adage was competitive with the two standard at- **planting** treatments and will offer growers an alternative **insecticide** class for early season insect control. 8 ref.

44/3,AB/4 (Item 1 from file: 235)
DIALOG(R)File 235:AGROProjects

0000000693 SYNGENTAP
SYNGENTA
COMPANY: SYNGENTA
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Chief Operating Officer, Crop Protection:
John Atkin
FILE SEGMENT: PESTProjects
DOC TYPE: Company profile
LANGUAGE: ENGLISH

TEXT:

COMPANY INFORMATION:
In December 1999, it was announced that AstraZeneca's agrochemical business and Novartis's crop protection and seed businesses were to be merged to create Syngenta. The company, formed in November 2000 was the first

agrochemicals-only business in the market.

Based on 2000 figures, the new company leads the world agrochemical market with pro-forma agrochemical sales of $6,846 billion ($5,888 billion in crop protection, $0.96 billion in seeds). The R&D spend in 2000 was $745 million (11% of sales). In the individual sectors, Syngenta is positioned number 1 in fungicides, number 2 in herbicides and **insecticides** . The company is positioned third in the seed market behind DuPont and Monsanto with sales of $960 million. In regional terms, Syngenta will be number 1 in all the major geographical areas.

Novartis holds 61% of Syngenta, AstraZeneca holds 39%.

The new company has a presence in over 100 countries, employs over 20,000 people and operates major R&D and manufacturing sites in 20 countries. The global headquarters is located in Basel, Switzerland. The European HQ will be based in Guildford in the UK.

The major Research and Technology centres are currently located at 9 sites in the US and Europe and employ over 2,500 people. These include Jeallot's Hill (UK), and La Jolla (California, USA), Research Triangle Park (N. Carolina, USA), Leiden (Netherlands), Basel and Stein (Switzerland). Biology research is carried out at Stein. Syngenta announced that it will close Zeneca's Western Research Centre at Richmond, California by the end of 2001. There are research stations at 14 sites in Europe, 13 in the USA, 11 in Asia-Pacific region, 3 in Latin America and 1 in Africa. The Europe/Africa/Middle East region will have approx. 13,000 employees over 40 research and manufacturing sites, NAFTA region will have 5,000 in 18 sites, Asia Pacific will have 3,800 in 21 sites and Latin America 2,000 in 7 sites.

The North American operation, Syngenta Agribusiness, is located at the former Zeneca site at Wilmington, Delaware while Syngenta Crop Protection (North America) will be based at the former Novartis facility in Greensboro, North Carolina. Syngenta Seeds (North America) is located at Golden Valley, Minneapolis. The southern row crops business is based in Cordova, Tennessee while the northern row crops team is located in Des Moines, Iowa. Syngenta's Canadian business is headquartered at the former Novartis facility in Guelph, Ontario.

Syngenta is expected to command approximately 25% of the global agrochemical market with crop protection products dominating the sales. Currently, herbicides account for 46%, fungicides for 25% and **insecticides** 18% of the $5,888 million crop protection sales. The new company plans to increase its sales of established and new products through professional outlets supplying the turf, ornamental, seed treatment and public health sectors.

Novartis's animal health business and AstraZeneca's 50% holding in the seed company, Advanta, were not included in the transaction. The restructuring of Novartis's agribusiness and Zeneca Agrochemicals will cost $900 million over 4 years and the companies expect the merger to deliver pre-tax cost savings of $525 million after 3 years; this will include an anticipated reduction of the global headcount of around 3,000 employees out of a total of 19,200.

The company's major products will include Bicep Magnum (S-metolachlor), Dual Magnum (S-metolachlor+atrazine), Fusilade (fluazifop-P-butyl), Topic (Clodinafop), Touchdown (glyphosate-trimesium), Gramoxone (paraquat), Amistar (azoxystrobin), Bravo (chlorthalonil), Ridomil Gold (metalaxyl-M), Score (difenoconazole), Tilt (propiconazole), Curacron (profenofos), Force (tefluthrin), Karate (lamda-cyhalothrin), Vertimec (abamectin), Celest, Maxim (fludioxonil).

In October 2000, Novartis Agribusiness announced the sale of its global trifloxystrobin (D0044) business to Bayer for $760 million to satisfy anti-trust concerns ahead of the planned merger (Zeneca marketed the rival strobilurin product, azoxystrobin, D0030L). The sale included the entire trifloxystrobin business including intellectual property rights, formulation technologies, trade marks, registration rights and production facilities in Muttenz, Switzerland. Bayer agreed to retain the Muttenz workforce. The EC and the US FTC approved the deal in December 2000.

Bayer also acquired the exclusive right to market products based on the triazole fungicide, cyproconazole in the European Economic area.

In early 2001, Syngenta announced that the company was targeting a market share well above the 20% level obtained by combining the two original businesses. Syngenta has identified the viniculture and fruit **cultivation** sectors as a major area for growth. These sectors currently represent 6% of sales and a 15% market share.

Syngenta operates a biological control company, Syngenta Bioline, which was formerly part of Novartis BCM. Bioline exports to 20 countries from the UK and is increasing capacity at its Essex location. There is also a production site in California. The company states that its range of products which includes beneficial **insects** and nematodes will be expanded in the future.

In total, Novartis and Zeneca planned to divest or license crop protection products from 39 market segments and valued at $340 million in sales (5.3% of their combined sales in 1999). The major divestments were from the cereal fungicide and maize herbicide markets. Syngenta divested the former Novartis cereal fungicide product portfolio in Denmark, Sweden and Finland. In order to avoid dominance concerns in other fungicide markets, Novartis had also agreed to license out Topaz (penconazole) in the Austrian vine mildew segment. In the French vine and orchard herbicide markets, Novartis agreed to divest its range of selective herbicides. Alternatively, the new flazasulfuron (W0008) range developed by Zeneca must be divested. Novartis also made a commitment to divest its metobromuron-based products used in the French and European potato markets and to address concerns over its sales of the maize herbicide, atrazine. In December 2000, it was announced that Makteshim-Agan Industries would purchase the grass herbicide propaquizafop and the pyrethroid **insecticide** , tau-fluvalinate for $78 million with further future payments depending on sales.

Zeneca was also required to divest parts of its portfolio including the worldwide acetochlor maize herbicide business. Dow AgroSciences signed an agreement to buy the acetochlor business; the purchase was completed in November 2000. Dow acquired the brands: Surpass; Fultime; TopNotch; Trophy; Wenner and others. The acetochlor sale included all products based on this active ingredient including combinations with atrazine but did not include manufacturing facilities. Dow will assume the existing US manufacturing arrangements agreed between Zeneca and Monsanto.

The status of GM lines in Syngenta is not yet clear but at present, they would represent only 2% of total sales with Novartis being a major supplier of conventional seeds. Syngenta's strategy is reported to include an increased use of biotechnology-derived products in Europe following the trends in the USA and Latin America but the company stated that it would take a very cautious approach to this market segment. Syngenta are known to be developing GM disease-resistant and nematode-resistant potatoes.

Syngenta stated, at its first annual results presentation in 2000, that it expects up to one third of global sales by 2004 to be generated from recently launched products or those in the R&D pipeline. It will focus on

blockbuster products (with potential sales > $200 million) and eliminate low-margin products from the portfolio. Over the next three years, the current portfolio of 121 actives will be trimmed to 76. The major product divestments required by the European Commission as a result of the merger were completed by May 2001.

The company pro-forma sales in 2000 are summarised in the tables below. See also the General Business News section.

Product category	2000 pro forma sales ($ million)	% Change
Selective herbicides	1,981	-7.7
Non-selective herbicides	714	+8.7
Fungicides	1,458	-4.0
Insecticides	1,052	+8.5
Professional products	538	-3.9
Others	145	-25.6
Total	5,888	-2.6

Region	2000 pro forma sales ($ million)	% Change
NAFTA	2,008	+3.9
Europe & Africa / M. East	1,991	-13.8
Asia / Pacific	1.039	+8.9
Latin America	850	0
Total	5,888	-2.6

GENERAL BUSINESS NEWS:

- First quarter sales in 2001 showed a decrease of 14.1% to $1,518 million, mainly due to adverse weather conditions in the northern hemisphere. Including the seed business, the turnover was $1,905, down by 12.1%. All product sectors and regions declined with fungicides hardest hit at -20% and Latin America down by 21.5%. Syngenta expects to complete the merger integration process in 2001 and to begin outperforming the market in 2002. [AGROW, 376, p6]
- In 2000, Syngenta's pro-forma crop protection sales fell by 2.6% to $5,888 million excluding the seed business. Product sales by volume were up by 4% while prices fell by 2%. Total sales, including seeds were $6,846 million, down by 2% from 1999. The total pro forma net income was $222 million, up by 16.85 on 1999. [AGROW, 373, p3-4]
- Sales of professional products, including seed treatments and products for use on turf and ornamentals fell by 4% due to acreage reductions in Europe. [AGROW, 373, p3-4]
- **Insecticide** sales grew by 8.5% in 2000. Good performances were noted for lambda-cyhalothrin, tefluthrin and abamectin. New products also showed good growth, especially **thiamethoxam** (Latin America) and emamectin benzoate (Asia plus first sales in the US) [AGROW, 373, p3-4]
- In June 2001, the US Patent & Trademark Office ruled in Syngenta's favour in the dispute with Bayer over the discovery of **neonicotinoid pesticides** including **thiamethoxam** (P0053). The PTO ruled that Novartis was the 'first to invent' the technology. The ruling allows Bayer to take the issue back to the federal court for ultimate resolution [AGROW, 380, p2]
- The French subsidiary, Syngenta Agro will move to its HQ at Yvelines by 2002. The business employs around 500 people and is organised in 5 divisions: herbicides; fungicides; **insecticides** and acaricides; seed treatments and plant growth regulators. Syngenta Agro expects turnover of 4,000 million francs in 2001
- The UK headquarters at Fernhurst will be closed. A new European HQ is to be established at Guildford by the end of 2001. [AGROW, 380, p7]
- Major forthcoming **insecticide** launches include the nematicide, Nemathorin (fosthiazate) in 2001 for use on bananas, potatoes and tobacco.
- Novartis announced it would commence direct sales of its products in Japan via the co-operative distribution channel (Zen-noh, Keizaren & Nokyo) from October 2000. Initially, 30 products were to be sold in this manner. The company plans to increase its stake in the Japanese JV, Tomono Agrica

which markets the former Novartis products in the merchant channel. [AGROW, 381, p2]
- Syngenta Bioline plans to introduce a beneficial species (Amblyseius montdorensis to control thrips and spider mites in a range of crops. [AGROW, 367, p4]
- Syngenta was launched in Germany in early 2001. Two independent companies, Syngenta Agro and Syngenta seeds will together employ around 400 people. The Agro business is split into 4 sales divisions. Strategic crops have been identified: cereals, oilseed rape, maize, potatoes, sugar beet and speciality crops. The company is targeting a 20% share of the German market [AGROW, 368, P7]

JOINT VENTURES:

- Diversa (USA) Novartis entered into a long-term research and development alliance with Diversa to promote the use and production of pest-resistant crops;
- Tomono Agrica (Japan) Syngenta holds a 50% stake in Tomono which markets Novartis's lufenuron (P0047) and pymetrozine (P0042) in Japan. Syngenta will increase its stake to 100% by August 2001. The company had sales of $105 million in 2000 and employs 170 employees. Together, the combined sales of Syngenta and Tomono account for 10% of the Japanese market [AGROW, 381, p2]
- Nantong **Pesticide** Factory, Nantong Petrochemical Corp, Jiangshan Agrochemicals (China)
joint venture in which Zeneca held a 65% stake. In 1998, the venture received Chinese government approval to manufacture Gramoxone (paraquat) from 2000. In early 2001, a new plant was opened in Nantong to supply the Chinese market and other Asia-Pacific countries with Gramoxone and Kung Fu, a leading **insecticide** .
- Zeneca Agro Asiatic (Thailand)
joint venture set up in 1981 between Zeneca and The East Asiatic Company (Netherlands) to sell Zeneca's products in Thailand. Fully owned since 2001 by Syngenta. [AGROW, 380, p3]

AGREEMENTS:

- Acacia Biosciences (US) agreement allowing Novartis to utilise Acacia's assay-based Genome Reporter Matrix computer modelling system in the selection and optimisation of new crop protection products;
- BASF BASF sold fenoxycarb (P0001) for Novartis in Spain;
- Biogema
Agreement between Novartis and Biogema (a Limagrain/Pau-Euralis joint venture) for research into plant genetics and biotechnology in major crops;
- Cambridge Discovery Chemistry (UK)
an agrochemical R&D collaboration whereby CDC took responsibility for Zeneca's chemistry research facility in Richmond, California.for a defined period of time with Zeneca providing the funding. [AGROW 343 p4]
- CCMB
Agreement between Zeneca and the Malaysian company, CCM Bioscience, to acquire a 51% stake in CCMB's subsidiary, CCMB Agrochemicals. The transaction enabled the company to distribute Zeneca's products in the whole region;
- Chiron Technologies (Australia) a three-year agreement (started in 1997) under which Chiron used combinatorial chemistry technology to synthesise potential new **pesticides** which Novartis would screen for activity;
- CombiChem (US) research agreement whereby this pharmaceutical discovery company generated compounds for Novartis to screen in vivo for agrochemical activity;
- Crop Care Australasia Syngenta and Crop Care agreed to terminate their regional distribution agreement from April 2001. Crop Care will continue to toll formulate and distribute certain products for Syngenta [AGROW, 367, p1]

- CTS (Israel) CTS sold lufenuron (P0042) in Israel;
- CyBio Screening Syngenta is to receive microbial samples for active ingredient screening from CyBio (Jena). The deal will operate to the end of 2001. [AGROW, 366, p3]
- Diversa Novartis's US agricultural biotechnology research division expanded its collaboration with US genomics company, Diversa (San Diego, California), to cover the improvement of synthesis routes for crop protection chemicals. Novartis planned to use Diversa's technology to modify DNA sequences and screen them to identify proteins with improved properties [AGROW, 363, p3]
- Enzymed (US) a three year research agreement to generate new agrochemical leads using EnzyMed's combinatorial biocatalysis technology;
- Fattinger Agrarchemie Fattinger sold fenoxycarb in Austria;
- Gene Data (Basle)
Zeneca agreed a licensing agreement with the bioinformatics company to use its `GD Expressionist' software system for genomics research; this will accelerate the identification of new targets for **pesticide** research and new genes for crop production applications. [AGROW 359 p4]
- Hokko Hokko sold pymetrozine (P0042) in Japan;
- Incyte Pharmaceutical (US)
agreement on a multi-year collaboration to study the genomes of agricultural crops whereby Zeneca gained access to Incyte's Phytoseq database and its microarray technology;
- ISK
Zeneca distributed chlorfluazuron (P0010) in Israel. In December 1997, Zeneca acquired international distribution rights outside Asia Pacific to fosthiazate (P0021);
- Jagri (France)
Syngenta agreed in 2001 to sell French rights to Pirimor G (pirimicarb) and Ordram Stauffer (molinate) to the Mitsui / Nippon Soda J.V., Jagri [AGROW, 377, p1]
- Jardine Davies (Philippines)
Jardine Davies will cease distribution of the former Zeneca product range from April 2001. Syngenta commences direct distribution from April [AGROW, 368, p7]
- Mitsubishi Chemical Novartis sold tebufenpyrad (P0016) in Australia;
- Makteshim-Agan Industries Makteshim has entered into a co-manufacturing agreement with Syngenta for two unnamed **pesticides** . They will be produced at Makteshim's plant at Ramat Hovav from Q1 2001 [AGROW, 367, p6]
- Maxygen
Five-year research agreement between Zeneca and Maxygen aimed at development of crop protection and quality traits;
- Myriad Genetics through NADI, a genomics agreement with Novartis to evaluate the genetics in cereal crops, aimed at developing pest- and disease-resistant crops with improved yield and quality traits;
- Nihon Nohyaku
Zeneca's French subsidiary, Sopra, co-developed fenpyroximate (P0024) in France. The company was the main distributor of Zeneca's products in Japan.
- Pharmacopeia screening agreement with Pharmacopeia which will use its proprietary combinatorial chemistry technology to provide chemical collections to Novartis. Pharmacopeia will receive payments for each collection provided, as well as milestone payments and royalties on sales of commercial products.
- Rocsa (Peru) Rocsa sold lufenuron for Novartis in Peru;
- Rosetta Inpharmatics (US)
Agreement with Zeneca to use Rosetta's Genome Reporter Matrix (GRM) in the selection and optimisation of lead compounds for use in crop protection;
- Sorex (UK)
Sorex took over the formulation and distribution of Zeneca's pest control products throughout Europe. The range included the **insecticide** , Demand (lamda-cyhalothrin). [AGROW 345 p4]
- Urania Pflanzenschutz (Germany) Urania sold fenoxycarb.
- Syngenta has research collaborations with over 400 institutions and

companies worldwide and is using these to identify opportunities to extend the range of crops its products can be used on. This is of particular relevance to growers of minor crops in Europe. [AGROW, 367, P4]

PRODUCTS IN PESTProjects:

PRODUCT USE STATUS AG NO
fenoxycarb (Insegar, Logic) broad-spectrum **insecticide** for the control of Lepidoptera and scales on fruit, ornamentals & turf & for public health use widely registered around the world, awaiting first food use registrations in the US P0001
emamectin-benzoate (Affirm, Denim, Proclaim) Controls lepidopteran **pests** on leafy vegetables & brassicas Launched in Israel, Japan, Mexico, South Korea, Taiwan and the US P0028
pymetrozine (Chess, Endeavor, Fulfil, Plenum) Pyridine-azomethine **insecticide** for control of aphids & whiteflies in a range of crops first launched in Switzerland in 1994, now launched worldwide P0042
lufenuron (Axor, Match) IGR for use on various crops, widely registered for animal health use first crop registration in France in 1993, now launched worldwide P0047
thiamethoxam (Adage, Cruiser) **Neonicotinoid insecticide** for foliar & seed treatment use on a wide range of crops first launched in New Zealand in 1997. Launched in 1999 in E. Europe, Latin America, Asia and Australasia P0053
Flufenprox pyrethroid **insecticide** for use on rice discontinued P0041D
diofenolan (Aware) novel IGR for control of scales & Lepidoptera in fruit discontinued P0059D